COPY

1 IN THE CHANCERY COURT
OF JACKSON COUNTY, MISSISSIPPI

2

3 IN RE: :
MIKE MOORE, ATTORNEY GENERAL:
4 EX REL. : CAUSE NO. 94-1429
:
5 STATE OF MISSISSIPPI :
TOBACCO LITIGATION :

6

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8 - - -

9 Tuesday, November 19, 1996
Philadelphia, Pennsylvania

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13 Oral deposition of ROBERT S. RHODES, M.D.,
14 taken pursuant to notice at the law offices of
15 DECHERT PRICE & RHOADS, 4000 Bell Atlantic Tower,
16 1717 Arch Street, Philadelphia, Pennsylvania,
17 at 9:10 o'clock a.m. on the above date, before
18 Dianna R. Pugliese, Registered Merit Reporter-
19 Commissioner.

20 - - -

21

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23 19th and Walnut Streets
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ROBERT S. RHODES, M.D.

1 I N D E X

2 WITNESS

3 Robert S. Rhodes, M.D.

4 QUESTIONS BY PAGE

5 Mr. McElveen - - - - - - - - - - - - - - - - 4

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ROBERT S. RHODES, M.D.

1 MR. MIKHAIL: The only stipulation that
2 hasn't been covered in an Order is that Dr. Rhodes
3 would like to read and sign the deposition. Let me
4 mention on the record, J. C., that the agreed case
5 management order in the case provides that the only
6 objection that would be allowed at expert
7 depositions is an objection to the form of the
8 question and all other objections are reserved. And
9 so if we would go with that stipulation as opposed
10 to the standard stipulation, which is similar. Is
11 that all right with you, J. C.?
12 MR. McELVEEN: That's fine.
13 - - -
14 ROBERT S. RHODES, M.D., having been
15 duly sworn, was examined and testified as follows...
16 BY MR. McELVEEN:
17 Q. Dr. Rhodes, my name is J. C. McElveen. We met
18 before the deposition. I'm a lawyer for the R. J.
19 Reynolds Tobacco Company, which is a party defendant
20 in the case of the Attorney General of Mississippi
21 versus various tobacco companies. And you have been
22 named as a potential expert witness on behalf of the
23 Attorney General of Mississippi, and that's why I'm
24 here to ask you a few questions.

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1 Let me ask you this preliminarily,
2 Dr. Rhodes, have you been deposed before in a
3 lawsuit?
4 A. Yes.
5 Q. So you're generally familiar with the process?
6 It's basically an information-seeking device on my
7 part. I ask questions, you answer them, Mr. Mikhail
8 objects, hopefully as little as possible but
9 sometimes he does and you know to hold your answer,
10 as it were, until the objection issue has been
11 lodged on the record?
12 A. Yes.
13 Q. You understand that this deposition is
14 completely within your control in the sense that if
15 you need to take a break or just to catch your
16 breath or something, just tell me and we'll do
17 that. If you do not understand a question, please
18 ask me to rephrase it or rearticulate it and I'll
19 try to do so as best I can.
20 A. Okay.
21 Q. Dr. Rhodes, would you state for the record
22 your full name and your present place of business?
23 A. I'm Robert S. Rhodes and currently I'm the
24 Associate Executive Director of the American Board

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1 of Surgery.
2 Q. All right, sir. And you mentioned that you
3 had had occasion to be deposed before in lawsuits.
4 Would you tell us for the record what that
5 involvement has been?
6 A. It's been limited from time to time. I will
7 get cases involving professional liability to
8 review. I will look at those, offer an opinion,
9 decline to get involved. I think over my entire
10 career, there actually have been two that have
11 progressed to the point of actually giving the
12 deposition and going to trial.
13 Q. Could you tell me very briefly just what those
14 involved and where they were filed?
15 A. One was in the -- was in Cleveland, Ohio. I
16 believe it was the early 1980's and it was a suit
17 against a surgeon who was treating a patient for
18 deep vein thrombosis. And there was alleged knee
19 injury that was involved and in that case I was
20 testifying for the defendant.
21 Q. Yes, sir.
22 A. The second was last year was a case in Florida
23 of misdiagnosis. And again, I was testifying for
24 the defendant.

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1 Q. And do you recall the law firm that was
2 representing the defendant in either of those cases?
3 A. The one in Cleveland I don't remember. The
4 one in Florida was last year and I probably should
5 remember. One is Matiere was one of the names.
6 It's in Orlando, Florida.
7 Q. It was an Orlando firm?
8 A. Yes.
9 Q. Are you a part of any type of a consortium or
10 group of physicians who are associated in any way
11 and who were asked to review files for medical
12 malpractice purposes?
13 A. No.
14 Q. Okay. So as far as you know, your name has
15 just been obtained by these various firms who would
16 then individually call you up?
17 A. Yes.
18 Q. Other than the two depositions in which you've
19 been involved that you've described here, how many
20 other cases have you looked at over the years?
21 A. Maybe a half a dozen.
22 Q. And have all of them involved some allegation
23 of medical malpractice?
24 A. Yes.

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1 Q. You have never been involved in litigation
2 involving tobacco in any way, shape or form in the
3 past?
4 A. No.
5 MR. McELVEEN: Let me ask the reporter
6 to mark a number of items. I'm going to hand you a
7 copy and Mr. Mikhail a copy. I'm going to ask the
8 reporter, Miss Reporter, if you would mark these
9 Deposition 1, 2 and 3.
10 (Deposition Exhibits 1, 2 and 3 were
11 marked for identification.)
12 Q. Dr. Rhodes, let me refer you to what's been
13 marked Deposition Exhibit 1 which is entitled
14 Amended Notice of Deposition. First of all, have
15 your lawyers provided you with a copy of this item
16 number 1?
17 A. I don't -- no. This is the first I've seen
18 it.
19 Q. Okay. On the second page of that document
20 there are a couple of numbers which reflect requests
21 for you to bring certain materials with you to this
22 deposition. Let me ask you preliminarily, have you
23 brought anything with you to the deposition other
24 than yourself?

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1 A. No.
2 Q. Okay. All right.
3 Charles, do you want to make a record
4 on that point since there is this request?
5 MR. MIKHAIL: I was going to but I
6 wanted to give you an opportunity to ask whatever
7 questions of Dr. Rhodes before I . . .
8 MR. McELVEEN: Let me ask one or two
9 more preliminarily.
10 MR. MIKHAIL: Okay.
11 Q. Dr. Rhodes, were you asked by your lawyers to
12 bring anything with you?
13 A. No.
14 Q. And since you have not seen this document
15 before this morning, I assume that any documents
16 which you may have that fit within numbers one and
17 two here on page two are somewhere but they're not
18 here; right?
19 A. Correct.
20 Q. Okay. Looking at number one and two, are
21 there any documents that you can recall that fit
22 into either one of those categories that had you
23 been asked to bring them, you could have?
24 A. Well, that I have received documents from them

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1 and they aren't here in Philadelphia. But there is
2 -- there is actually no agreement between myself
3 and the plaintiff or plaintiff's counsel concerning
4 compensation in this case. That simply has not been
5 discussed.
6 Q. Okay. And what about, then, number two, do
7 you have any documentary material that would be
8 either a copy of an expert statement or . . .
9 A. No.
10 Q. . . . a 26(B)(4) statement?
11 A. No, I haven't created any documents for that.
12 MR. McELVEEN: Okay. I think that's
13 really all the preliminary questions I have.
14 MR. MIKHAIL: Okay. I'm going to make
15 just a very brief statement. Paragraph 23, I
16 believe, of the agreed case management order
17 provides that a filing of a motion for protective
18 order or a motion in the nature of a protective
19 order stays production by the recipient of a request
20 for production or a subpoena as it relates to
21 experts.
22 The State of Mississippi filed a motion
23 to enjoin the defendants from obtaining documents
24 such as the ones requested in this Amended Notice of

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1 Deposition. The argument of counsel was heard by
2 the Court, I believe it was on August 28, and the
3 court took the motion to enjoin under advisement.
4 The Court has not made a ruling and until such time,
5 the plaintiff, the State of Mississippi, is not
6 agreeing to make production of any of the documents
7 requested.
8 However, in the proposed order and in a
9 stipulation on the record between counsel for the
10 parties before Judge Myers on August 28, the
11 plaintiff agreed to produce to the defendants at
12 least seven days prior to the deposition date a copy
13 of the final version of any study prepared by the
14 expert for this litigation or otherwise on which the
15 expert will rely in whole or in part on his or her
16 deposition, that study not being publicly
17 available.
18 In other words, if it's a published
19 article, if it's a treatise, if it's something that
20 the defendants could obtain by downloading it from a
21 database or a medical library, we are not agreeing
22 to produce that. But if it's something that they
23 would not have access to it otherwise, we would do
24 that. As Dr. Rhodes has testified, there is no such

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1 document and, therefore, we're not making that
2 production.
3 As far as agreement, Dr. Rhodes is
4 correct, there has been no specific agreement.
5 However, our proposed order does say that though we
6 would refuse to produce tax records without court
7 order, income tax records of the expert, that you're
8 free to inquire of him about any compensation that
9 he's received as an expert witness in this case or
10 otherwise. That's all I have.
11 MR. McELVEEN: Okay.
12 BY MR. McELVEEN:
13 Q. Doctor, I understand that you have not talked
14 to counsel about your fees in this case. Do you
15 have in your mind what you would be charging per
16 hour for your time?
17 A. In the past, I've charged $250 an hour.
18 Q. Okay. And so far as you know, there's going
19 to be no divergence from that here?
20 A. No.
21 Q. And would that include time spent both in
22 reviewing materials such as, for example, the
23 Surgeon General's reports and in testifying?
24 A. Yes.

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1 Q. Doctor, let me ask you to turn, if you would,
2 to Exhibit 2.
3 A. That's this?
4 MR. MIKHAIL: CV.
5 Q. Right, your CV and your list of publications.
6 Is that a current CV?
7 A. Yes.
8 Q. Let me ask a sort of follow-up question
9 preliminarily and that is how much time would you
10 estimate that you have devoted to this case prior to
11 this morning?
12 A. I don't -- I don't believe -- well, it's
13 probably less than 40 hours.
14 Q. All right, sir. And can you generally
15 describe for me what types of activities you would
16 have done during that 40-hour period?
17 A. Mostly it was reading depositions of expert
18 witnesses and one day was travel to Charleston,
19 South Carolina, to the offices of Ness Motley for a
20 briefing and discussion.
21 Q. To the best of your recollection, whose
22 testimony did you read?
23 A. There -- the ones that I read most recently
24 are Dr. Peto and Dr. Blackburn. They've done

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1 wonders for my insomnia.

2 MR. MIKHAIL: That's no reflection on

3 you, J. C.

4 Q. I was going to say, the Blackburn deposition

5 was a fascinating one, I thought. Let me ask you

6 this question, Doctor. Did you review the 1983

7 Surgeon General's Report in preparation for this

8 case?

9 A. Not specifically. I think it was -- it may

10 have been included in one of the documents that I

11 received from the plaintiff's attorneys but was a

12 Xerox copy and very difficult to read so I didn't

13 even attempt it.

14 Q. Okay. Had you read it when it first came

15 out? And by this, I mean the 1983 Surgeon General's

16 Report on Peripheral Vascular Disease.

17 A. No, I did not.

18 Q. At the meeting at Ness Motley in Charleston,

19 what was discussed?

20 MR. MIKHAIL: Let me make an

21 objection. I think you can ask him about medical

22 information or material that he went over and

23 prepared but I will not permit Dr. Rhodes to answer

24 questions regarding communications with counsel.

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1 That is part of the motion to enjoin. And so I
2 would limit his answers to anything that he did at
3 the meeting as it relates to his medical testimony
4 but not communication with counsel in any way other
5 than that on the ground of privilege.
6 MR. McELVEEN: Okay. In light of that
7 objection, let me ask some slightly different
8 questions, if I may.
9 Q. First of all, did you make any presentations
10 at the meeting at Ness Motley?
11 A. No.
12 Q. Were presentations of any sort made to you?
13 A. No.
14 Q. Without describing any of the substance of any
15 of the conversations, were any conversations had
16 with you with respect to the issue of peripheral
17 vascular disease?
18 A. No.
19 Q. Okay. Was any portion of any conversation
20 that took place at the Ness Motley firm -- let me
21 back that out and ask it a slightly different way.
22 Did any conversation that you had at the Ness Motley
23 firm form any portion of your opinions in this case
24 or any part of those opinions?

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A. No.

Q. Do you remember about when that was, when that meeting was?

A. I believe it was in September.

Q. Okay. Of '96?

A. 1996, yes.

Q. To your knowledge, was it before or after you were designated as an expert in this case?

A. After.

Q. Okay. Tell me how you were first contacted and by whom with respect to participation in this case?

A. I was contacted I believe in 1995 by the Attorney General's office and asked to come to a meeting with the Attorney General and Richard Scruggs in which he discussed the case in general. We discussed a little bit about my background in peripheral vascular disease and then they asked if I would be an expert witness. And then I agreed and then nothing much happened until recently.

Q. As is typically the case in legal matters.

MR. MIKHAIL: It's a wonder anything ever gets done in litigation.

Q. About when in '95 was that? Do you recall?

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1 A. I really can't -- maybe mid '95 but that's a
2 pure guess.
3 Q. Okay. And at this meeting with the Attorney
4 General and with Mr. Scruggs, were other doctors
5 present?
6 A. No.
7 Q. Were they the only three people at the meeting?
8 A. Yes.
9 Q. And was that in Jackson?
10 A. Yes.
11 MR. MIKHAIL: That's Jackson,
12 Mississippi.
13 Q. At the time that you were asked with respect
14 to your background in peripheral vascular disease,
15 were you asked to determine or do any research on
16 the issue of the cost to the Medicaid program in
17 Mississippi of peripheral vascular disease as a
18 disease problem?
19 A. No.
20 Q. Okay. Have you done any research into that
21 issue since then?
22 A. No.
23 Q. Okay. What is your understanding of what this
24 suit seeks in the way of recovery with regard to

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1 peripheral vascular disease?
2 A. I really have a very limited understanding of
3 what it seeks to recover. A lot of the depositions
4 that I've read have dealt more with the issue of
5 lung cancer and I'm not familiar in any way with any
6 model that's used to calculate such costs.
7 Q. Nor, I take it, have you been asked ever to
8 look at such a model?
9 A. Correct.
10 Q. Okay. Tell me, if you would, whether you
11 reviewed any medical literature in preparation for
12 this deposition?
13 A. Yes, I did.
14 Q. Tell me what that consisted of?
15 A. I reviewed the articles in my CV that I had
16 written that I thought might be pertinent just so I
17 could try and re-familiarize myself with those. I
18 also reviewed an article by professors I worked
19 under that were related to the effects of smoking on
20 the long-term patency of vascular grafts.
21 Q. Okay. Other than that, did you review any
22 medical literature?
23 A. No. Well, let me -- unless there was
24 literature such as that that was provided by the

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1 attorneys, like the Surgeon General's Report.
2 Q. Okay. Now, you mentioned a few minutes ago
3 that you weren't sure whether they had sent you the
4 Surgeon General's Report. Is that a fair
5 characterization of your testimony?
6 A. Yes.
7 Q. So they may have done so but you're just not
8 absolutely sure as we sit here today; right?
9 A. Well, it was mixed in with some documents in
10 which the Tobacco Research Institute were providing
11 the critique of the Surgeon General's Report and I
12 cannot at this moment reconcile in my mind which I
13 was reading at the time.
14 Q. Okay. Were there medical articles on
15 peripheral vascular disease which were furnished to
16 you by the Attorney General's office?
17 A. No.
18 Q. Tell me very -- we have your CV, of course,
19 here, but tell me in your own words sort of what's
20 your postgraduate experience and training and sort
21 of progression has been in the profession?
22 A. Specifically related to vascular disease?
23 Q. No, more generally now with respect to general
24 surgery.

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1 A. Okay.

2 MR. MIKHAIL: You're free to use your

3 CV if you'd like if it would help you remember.

4 THE WITNESS: No, that's -- I remember

5 it all too well.

6 MR. MIKHAIL: Well, there's so much on

7 here that I didn't know if you needed notes.

8 MR. McELVEEN: Thank you, Mr. Mikhail.

9 A. I went to college at Cornell University in

10 Upstate New York, went to medical school in

11 Syracuse. After graduation from medical school I

12 did my internship and residency at Case Western

13 Reserve University in Cleveland, Ohio, save for two

14 years during that time in which I did a research

15 fellowship in Boston.

16 Following completion of my residency in

17 1973, I spent two years in the Air Force in Sumter,

18 South Carolina, whereafter I returned to Cleveland

19 and was on the faculty at Case Western Reserve

20 University. In 1988 I left there to become

21 professor and chairman of the Department of Surgery

22 at the University of Mississippi Medical Center. In

23 1995 I became Medical Director of the University

24 Hospitals, and in 1996 I'm here.

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1 Q. Okay. And tell me what "here" is. You've
2 very briefly, generally mentioned it before but tell
3 me a little bit about what this job is?
4 A. The American Board of Surgery has the
5 responsibility of reviewing the credentials of
6 surgeons who have completed accredited residency
7 programs in surgery in the United States. Having
8 reviewed those and deemed that these residents have
9 met acceptable standards of training, they are then
10 admitted to a series of examinations which are
11 prepared and administered by the American Board of
12 Surgery and the successful completion of these
13 examinations lead to what we call board certified
14 status.
15 Q. And you are the associate director of what?
16 A. I am the Associate Executive Director of the
17 American Board of Surgery.
18 Q. Okay. And what duties does that entail? Do
19 you . . .
20 A. That involves the whole gamut of duties as I
21 just outlined. I participate in all those
22 activities.
23 Q. Okay. Are you involved in any type of, for
24 lack of a better term, sort of lobbying activities

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1 on behalf of the American Board of Surgery for
2 keeping up with legislation that might affect
3 surgeons and things of that nature?
4 A. No.
5 Q. Are there such individuals at the American
6 Board of Surgery who do that?
7 A. No.
8 Q. Your publications list mentions a number of
9 articles dealing with hemorrhagic shock.
10 A. Yes.
11 Q. Describe for the record, if you would, what
12 hemorrhagic shock is?
13 A. Hemorrhagic shock is a state of cardiovascular
14 collapse. There are probably many etiologies of
15 cardiovascular collapse. And hemorrhagic shock
16 refers to that collapse induced by severe bleeding.
17 Q. And was that primary research interest of
18 yours in the earlier years of your medical career?
19 A. Yes.
20 Q. I assume that at the present time, you have no
21 patient responsibilities; correct?
22 A. Correct.
23 Q. And when you were the head of the University
24 Hospitals system, I assume that that was limited, at

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1 best?
2 A. I probably spent 50 percent of my time in
3 clinical activities.
4 Q. The other 50 percent in administrative?
5 A. Yes.
6 Q. At what period of time would you say that you
7 began to devote a substantial portion of your time
8 to administration?
9 A. I think it's increased progressively across my
10 career which is typical for someone going through
11 the academic process. Probably a dramatic change
12 occurred in 1988 when I became department chairman
13 because that title simply carries with it a lot of
14 administrative responsibilities. And I think that
15 that's probably a good point of departure to say
16 that the majority of time flipped from clinical
17 activities to administrative activities at that
18 point and probably has remained so thereafter until
19 the most recent position where there are no clinical
20 activities.
21 Q. Tell me if you would -- let me ask the
22 question this way: When you went to talk to the
23 Attorney General and Mr. Scruggs in 1995 and they
24 asked you about your background in peripheral

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1 vascular disease, did you say to them in any way,
2 shape or form, I may not be your best guy for this
3 job?
4 A. I can't recall the specifics of that, of the
5 conversation. I do recall it was a general
6 discussion about the topic of stroke and peripheral
7 vascular disease. And I think I made it clear to
8 them that a lot of my research had not been on the
9 effects of smoking and peripheral vascular disease.
10 My -- the best I could offer them was as a clinical
11 vascular surgeon.
12 Q. And has any of your research involved that
13 issue of the effects of smoking on vascular disease?
14 A. No.
15 Q. A fair number of your articles deal with
16 various aspects of vascular surgery, though;
17 correct?
18 A. Correct.
19 Q. Okay. And do you consider yourself a vascular
20 surgeon or a general surgeon?
21 A. I don't think one has to distinguish between
22 the two. Vascular surgery is an integral part of
23 general surgery but it also has its sufficient body
24 of knowledge that some individuals have gotten

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1 additional training and taken additional
2 examinations to become certified as having either
3 special or added qualifications in vascular
4 surgery. And so I have both qualifications in
5 general surgery and qualifications in vascular
6 surgery.
7 Q. And the vascular surgery board is basically a
8 subspecialty board of the general surgery board?
9 A. Correct.
10 Q. You have to be board certified in surgery
11 before you can take the vascular surgery boards?
12 A. That is correct. I wish more physicians
13 understood that.
14 Q. And are you board certified in both
15 specialties?
16 A. Yes.
17 Q. Okay. Does the American Board of Surgery
18 administer the vascular surgery subspecialty board?
19 A. Yes.
20 Q. Are there other subspecialty boards that the
21 American Board of Surgery administers besides the
22 general surgery boards and the vascular surgery
23 sub-boards?
24 A. Yes. It administers an examination in

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1 pediatric surgery, it administers an examination in
2 surgical critical care, and it co-administers with
3 the two other boards the examination in hand
4 surgery.
5 Q. That being the American Board of Plastic
6 Surgery and the American Board of Orthopedic Surgery
7 or Orthopedics?
8 A. I'll tell you what, you're right on top of
9 this.
10 Q. I may come back to that in just a moment but
11 we'll turn just for a second to your Exhibit 3 which
12 is your Expert Statement. Let me ask you this
13 question preliminarily, though, and that is that in
14 formulating your opinions that are categorized in
15 this Exhibit 3, Rule 26 Expert Statement, is it fair
16 to say that your opinion number one that cigarette
17 smoking causes peripheral vascular disease is based
18 solely on what you have read?
19 MR. MIKHAIL: Object to the form. This
20 26(B)(4) statement sets forth what he bases the
21 opinion on. But you may go ahead and answer.
22 A. If -- when you say what I have read, if what I
23 have read means the documents that have been
24 provided by the attorneys for the plaintiffs, the

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1 answer is no. If it's based on what I have read
2 throughout my career to familiarize myself with the
3 scientific material, the answer is yes.
4 Q. Okay. And a sort of corollary question to
5 that would be that opinion that cigarette smoking
6 causes peripheral vascular disease is not based at
7 all on your own research?
8 A. Correct. Well, let me clarify that. Research
9 in terms of laboratory or clinical research but
10 research of literature. That's kind of broadly
11 expanding the term.
12 Q. Okay. Right. Right. One of the grounds for
13 your opinion there in sort of the bottom part of the
14 Basis/Grounds of Opinion at the very bottom of
15 Exhibit 3 is that part of the basis for your opinion
16 is the consensus position of the major scientific
17 and health organizations. And I guess my question
18 is, I mean, is that a portion of the basis for your
19 opinion with respect to medical issues is what other
20 people think or organizations, you know, sort of
21 articulate?
22 A. Probably not the basis of an opinion. It's
23 probably fair to say that those statements represent
24 their own review of the existing literature. If one

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1 takes the scientific literature as a debate forum
2 where ideas and information is put forth and one
3 reviews it and these scientific and health
4 organizations review it and finally decide that the
5 weight of the evidence is sufficient for them to add
6 the weight of their opinion to an issue, they do
7 so. But that, in some ways, is really a secondary
8 source. And I believe that my opinions probably
9 existed prior to the publication of those reports.
10 Q. Okay. Tell me, if you would, how this Rule 26
11 Expert Statement came about. Did you prepare it?
12 A. No.
13 Q. Did you talk to some people who then prepared
14 this and sent it to you for your approval?
15 A. No, it was not sent to me for my approval.
16 Q. Okay. Did you see it before today?
17 A. Yes.
18 Q. Okay. Did you see it before it was filed, do
19 you know?
20 A. I would say probably not in that it was sent
21 among some other materials and I think it
22 specifically stated that it had been filed.
23 Q. Okay. Having reviewed it since you got it, do
24 the opinions that are set forth in 1, 2 and 3 in the

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1 top portion accurately reflect your beliefs or is
2 there anything about any of those three statements
3 that you would wish to change?
4 A. It accurately reflects my beliefs. I'm not --
5 in statement 3, it is worded in such a way in which
6 one interpretation is correct and another
7 interpretation might be misleading.
8 Q. Well, let me just read number 3 into the
9 record so that the record at least will know what
10 we're talking about, and that is "Death from rupture
11 of an atherosclerotic abdominal aneurysm is more
12 common in cigarette smokers than in nonsmokers." Is
13 that the statement to which you refer?
14 A. Yes.
15 Q. Tell me what the competing interpretations
16 would be and which is right and which isn't?
17 A. Well, I believe that smoking plays a role in
18 the etiology of atherosclerotic abdominal
19 aneurysms. Whether smoking plays a role in the
20 rupture of the aneurysms I can't say because I'm not
21 specifically familiar with any literature that
22 addresses that. And I think that that's where the
23 statement comes in that is possibly being
24 misleading. I think where the cigarette smoking

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1 plays a role is in the genesis of the aneurysms
2 which then can proceed to rupture, probably
3 independently of smoking at that point.
4 The way that statement is worded, it
5 may be construed to mean that the cigarette smoking
6 has something to do with the rupture when it
7 actually, at least in my mind, has more to do with
8 the formation of the aneurysm and then once the
9 aneurysm is formed, there are plenty of things that
10 can lead to rupture without necessarily having
11 ongoing -- ongoing smoking.
12 Q. Does smoking contribute, in your opinion, to
13 the formation of aortic aneurysms in the thorax?
14 A. I believe it does.
15 Q. Is there literature, do you believe, that's
16 out there that supports that proposition?
17 A. Yes.
18 Q. Okay. In reading Dr. Peto's deposition and
19 indeed in reading Dr. Blackburn's deposition, you
20 know that a portion of the discussion in those two
21 depositions dealt with the concept of the term
22 cause.
23 A. Yes.
24 Q. And I would ask you with respect to your

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1 statement number 1, "Cigarette smoking causes
2 peripheral vascular disease," whether you believe
3 that is a more accurate statement or whether
4 cigarette smoking is a risk factor for peripheral
5 vascular disease is a more correct statement?
6 A. I would say in a clinical context, cigarette
7 smoking causes peripheral vascular disease. And if
8 I can clarify that, if one says peripheral vascular
9 disease is, let's say, is manifest pathologically at
10 autopsy, if you do autopsies on people who are 90
11 years of age, I think there is always going to be
12 some evidence of vascular disease that's probably
13 related to a degenerative phenomenon. I mean,
14 nobody is, when they reach that age, dies with the
15 same arteries they were born with.
16 On the other hand, when you consider
17 peripheral vascular disease not as a histologic or
18 pathologic phenomenon but as a phenomenon which
19 produces sufficient vascular insufficiency to
20 produce limb-threatening ischemia, gangrene, then I
21 would say that cigarette smoking causes, if not as a
22 single factor, as a major co-contributor to
23 peripheral vascular disease.
24 Q. In light of that description, is it fair to

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1 say that your opinion is that cigarette smoking
2 probably does not cause atherosclerosis?
3 A. I don't think that's a fair -- I don't think
4 that's a fair statement but I want to make sure we
5 don't get so many negatives we're getting confused.
6 Q. Right.
7 A. I believe cigarette smoking can cause,
8 directly or as a co-contributor to atherosclerosis.
9 Let me modify that by saying clinically significant
10 atherosclerosis.
11 Q. Okay. And by "clinically significant" in this
12 context, we're talking about symptomatic peripheral
13 vascular disease; right?
14 A. Or abdominal aortic aneurysms which may be not
15 symptomatic but yet potentially lethal.
16 Q. Do you agree that people can develop
17 peripheral vascular disease without having smoked?
18 A. Yes.
19 Q. And do you agree that there are a good many
20 people who, though smokers, don't have manifest
21 peripheral vascular disease?
22 MR. MIKHAIL: I object to the form of
23 the question as to "a good many people" but you can
24 answer it the best way you can.

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1 A. Rephrase . . .
2 Q. Let me re-ask it.
3 A. Okay.
4 Q. Isn't it a fact that the vast majority of
5 people who smoke do not develop clinically
6 significant peripheral vascular disease?
7 MR. MIKHAIL: Still object to the form
8 of the question. Try to answer it.
9 A. I can't answer that question to the extent
10 that as a clinician, we only see patients who have
11 progressed to the stage of symptomatic vascular
12 disease and don't, as part of our specific careers,
13 don't delve into the rest of the population. That
14 does not have clinical significance so I can't tell
15 you what the ratio is.
16 Q. Let me ask the question more specifically
17 directed at your practice. Isn't it fair to say
18 that you have seen patients, elderly patients in the
19 hospital who you have performed surgical procedures
20 on of one sort or another who have been smokers and
21 who may be smokers at the time that you see them and
22 yet symptomatic peripheral vascular disease is not
23 one of their complaints?
24 A. Correct.

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1 Q. So you would agree, then, I take it, that
2 smoking is neither a necessary nor a sufficient
3 cause of peripheral vascular disease?
4 A. Necessary, we've already said it's not
5 necessary, and probably that's sufficient.
6 MR. McELVEEN: Do you want to take a
7 couple minutes?
8 MR. MIKHAIL: Yes, that's fine.
9 (A recess was taken from 9:58 to
10 10:05 a.m.)
11 BY MR. McELVEEN:
12 Q. Dr. Rhodes, I want to ask you a few questions
13 about some other issues and I may be making
14 reference to a couple of articles. I'm going to
15 probably show you and your counsel the articles so
16 you can follow along with me but I may not offer
17 them into evidence. It's just a sort of convenience
18 to you to take a look at them.
19 And one of the things I want to show
20 you as an initial matter is an article that appeared
21 in a publication called Surgery. First of all,
22 could you tell us what Surgery magazine or Surgery
23 journal is?
24 A. It is a monthly scientific publication devoted

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1 to the art and science of surgery and reviews,
2 accepts and publishes articles dealing with the wide
3 gamut of surgical problems, particularly as it
4 relates to general surgery with a certain element of
5 vascular surgery. And the articles can range all
6 the way from basic science to clinical reviews.
7 Q. This particular article comes from the October
8 1993 issue of Surgery. I notice that you are on the
9 editorial board at that point in time?
10 A. Yes.
11 Q. And I also notice that the Society of
12 University Surgeons' next meeting was going to be in
13 February of 1994 down in Jackson. Did you have a
14 role in that?
15 A. I sure did.
16 Q. Okay. This is an article by Dr. William Cole,
17 C-o-l-e, and others entitled Cigarette Smoking and
18 Peripheral Arterial Occlusive Disease. First of
19 all, I want to ask you this question: Do you know
20 Dr. Cole?
21 A. No.
22 Q. Secondly, did you read this article in
23 preparation for your deposition?
24 A. No.

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1 Q. Okay. Third, I guess, is were you one of the
2 reviewers of this article?
3 A. I can't recall specifically but I do not
4 believe so.
5 Q. Okay. Is it fair to say that on the Editorial
6 Board, and I believe you have a list of those
7 Editorial Board members . . .
8 A. Yes.
9 Q. . . . toward the end of this article, on the
10 Editorial Board at that time were there people who,
11 in your opinion, would have been better reviewers
12 for an article of this description than you would
13 have been?
14 A. Probably.
15 Q. Okay.
16 A. But I don't make that selection. The editors
17 make that selection.
18 Q. Are the Editorial Board members of a journal
19 like this ordinarily the peer reviewers?
20 A. Yes.
21 Q. What types of articles for Surgery magazine
22 would you have reviewed? In other words, were there
23 types of articles that you customarily got from the
24 editors?

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1 A. I would get some articles on vascular
2 problems, even though I did not get this specific
3 one. I'd also get articles on the wide range of
4 surgical problems since I do both general and
5 vascular surgery.
6 Q. But, for example, you wouldn't necessarily be
7 the one that would get an article on hemorrhagic
8 shock or something just because of your previous
9 area?
10 A. No. That's always the editor's prerogative.
11 But they very well might. And I'm sure that's a lot
12 of the editor's function. But there are also other
13 people on the Editorial Board who are familiar with
14 that and so it does not follow that I would get
15 every article on peripheral vascular disease or
16 every article on shock.
17 Q. Okay. The peer review process is one, is it
18 fair to say, in which individuals familiar with the
19 area in which a person is writing an article look at
20 it and review it to determine whether it has
21 something to add to the scientific literature on
22 that subject?
23 A. Yes.
24 Q. Okay. And I take it Surgery is a peer review

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1 journal?
2 A. Yes.
3 Q. You might not necessarily agree with
4 everything the author or authors propound but at
5 least they got there going the right way; right?
6 A. Correct.
7 Q. Okay. A statement is made in the very first
8 paragraph of this article by Dr. Cole and others
9 that I want to direct your attention to and that is
10 this statement: "The prevalence of intermittent
11 claudication among middle-aged and elderly people in
12 developed countries is about two percent but the
13 prevalence of noninvasively diagnosed asymptomatic
14 disease is about five times greater. Of those
15 patients presenting with symptoms, only about ten
16 percent require surgical treatment and the disease
17 progresses to amputation in only five percent."
18 First of all, I'm going to ask you some
19 specific questions about various portions of that
20 statement but I want to ask you this more generally,
21 do you agree with that evaluation or analysis of the
22 prevalence and the necessity for surgery and
23 amputation in the population?
24 A. I can't tell you what the specific percentages

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1 are but from clinical experience, it seems about
2 right.
3 Q. All right, sir. Now, let me ask you, first of
4 all, to direct your attention to the first sentence
5 that we read, "The prevalence of intermittent
6 claudication among middle-aged and elderly people in
7 developed countries is about two percent but the
8 prevalence of noninvasively diagnosed asymptomatic
9 disease is about five times greater." First of all,
10 this article uses the term peripheral arterial
11 occlusive disease. We've been talking about
12 peripheral vascular disease. Are the two terms
13 synonymous?
14 A. Not entirely because abdominal aortic
15 aneurysms, one category in which smoking is thought
16 to contribute to their etiology and, in contrast to
17 the lumen of the artery occluding blood flow, in the
18 case of aneurysms the artery dilates. There's no
19 restriction of flow. The artery wall gives way.
20 Q. Okay. So abdominal aortic aneurysm is a sub-
21 class of peripheral vascular disease but not a part
22 of peripheral arterial occlusive disease?
23 A. Correct.
24 Q. Are there other entities of diseases of the

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1 vessel in the arteries that are included in
2 peripheral vascular disease but not in peripheral
3 arterial occlusive disease?
4 A. There may be some very low frequency of
5 related disorders but I think that's going to catch
6 probably 99 percent of them.
7 Q. Okay. You talked there about aneurysm a
8 second and you mentioned something and I want to
9 follow up on it. Is it your opinion that cigarette
10 smoking both occludes and dilates arteries?
11 A. It is thought to play a role in both of those
12 conditions, yes.
13 Q. One of the comments made by Dr. Blackburn
14 during the course of his deposition was that in his
15 opinion, one of the prerequisites for -- let me ask
16 the question rather than make it a statement. Did
17 you understand from reading Dr. Blackburn's
18 deposition that he's of the opinion that one of the
19 prerequisites for the development of atherosclerosis
20 is hypercholesterolemia in populations, anyway?
21 A. It is not an absolute prerequisite. I think
22 it's also frequently found but it's not an absolute
23 prerequisite.
24 Q. And hypercholesterolemia just means high blood

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1 cholesterol; right?
2 A. Yes. It does not specify which type of
3 cholesterol and it's often times the term is used
4 generically.
5 Q. Is high cholesterol a contributing cause for
6 peripheral vascular disease?
7 A. I believe it is.
8 Q. Okay. And I believe you testified that you
9 believe that smoking is not necessary for the
10 development of peripheral vascular -- let's just
11 talk about peripheral arterial occlusive disease at
12 this point.
13 A. Okay.
14 Q. Do you believe that cigarette smoking is
15 necessary for the development of peripheral arterial
16 occlusive disease?
17 A. No.
18 Q. Okay. Do you believe that cigarette smoking
19 is sufficient for the development of peripheral
20 arterial occlusive disease?
21 A. Yes.
22 Q. So that you, if you saw a patient who had
23 peripheral -- let me back up. If you saw a patient
24 with peripheral arterial occlusive disease who is

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1 not a smoker, that wouldn't surprise you; right?
2 A. It would not surprise me so long as they were
3 a diabetic in that diabetics get peripheral arterial
4 occlusive disease without necessarily having other
5 etiologies.
6 Q. Okay.
7 A. If the patient had peripheral arterial
8 occlusive disease and was neither a diabetic nor a
9 smoker, I think that would be a highly unusual
10 situation.
11 Q. Have you, in your practice, ever seen a
12 patient who had very high blood cholesterol and
13 hypertension who was not diabetic and who was not a
14 smoker who had peripheral vascular disease?
15 A. I can't recall seeing such a patient.
16 Q. What percentage of your patient load were
17 people with -- and this may have varied over time
18 and if so, tell me that -- what percentage of your
19 patient load in Mississippi represented peripheral
20 arterial occlusive disease?
21 A. Percentage of my practice?
22 Q. Right. In other words, of all the patients
23 you had, say in a given year, what percentage of
24 them would have been in there for peripheral

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1 arterial occlusive disease surgery?
2 A. Given that I was always doing both general and
3 vascular surgery, although it varied depending upon
4 the specific circumstances, my best guess is it was
5 somewhere in the 50/50 range, about half the
6 patients I was seeing had peripheral arterial
7 occlusive disease.
8 Q. And you were a referral physician in the sense
9 of being referred up sort of the harder cases? Is
10 that a fair statement?
11 A. Yes.
12 Q. And would cases from all over the state be
13 referred to you?
14 A. Well, they'd be referred into the Medical
15 Center, yes.
16 Q. Okay. We've talked about peripheral arterial
17 occlusive disease for just a little bit and one of
18 the statements that's made here in this sentence is
19 the prevalence of intermittent claudication among
20 middle aged and elderly people in developed
21 countries is about two percent. Tell me what
22 intermittent claudication is.
23 A. Let me start with some basic physiology. The
24 normal blood flow to the extremities, legs in this

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1 particular case, is a value we shall call "X."
2 Okay. If we sit here and are not using our leg
3 muscles, the body has a mechanism by which it does
4 not provide any more blood flow to the extremities
5 than is necessary to meet the resting metabolism of
6 the muscles.
7 When one begins to exercise, walking,
8 for instance, and the muscles start to work, their
9 oxygen requirements increase and the body's
10 mechanism as it senses that is to dilate the blood
11 vessels to allow more blood flow and, thus, more
12 oxygen delivery to the muscles to meet their
13 metabolic demands. And in highly trained athletes,
14 through a variety of mechanisms, they can have
15 tremendous increases in blood flow. So that the
16 blood flow at maximum exercise can be 10 or 20 times
17 what it is at rest.
18 When a patient begins to develop
19 peripheral arterial occlusive disease, some of the
20 major arteries supplying the lower extremity may be
21 blocked. But the anatomy of the arterial system as
22 it develops is that there are other blood vessels
23 that are called collaterals can, when the process
24 takes place over time as compared to acutely,

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1 develop alternate channels by which blood flow can
2 get down to the limb. Now, these alternate channels
3 often times carry enough blood flow to continue to
4 meet the muscle demands for oxygen at rest.
5 When one starts exercising, however,
6 and the demand goes up, these collaterals may or may
7 not be able to meet the demands, depending upon how
8 fast or how far an individual walks. And it's those
9 symptoms that one gets when the muscles are not
10 getting enough oxygen that are the -- it's the pain
11 in the muscles that are involved that is called
12 intermittent claudication.
13 Claudication is the pain and the
14 intermittent nature simply refers to it only occurs
15 when you exercise those muscle groups to sufficient
16 degree to exceed the oxygen demands beyond the
17 ability provided. Okay. So if one goes ahead and
18 tests for the presence of occlusions in arteries,
19 one can find them.
20 But as pointed out in that sentence,
21 not all of them will be symptomatic because the ones
22 who are not symptomatic have probably not walked far
23 enough or pushed hard enough in their activity in
24 the course of daily living to bring them out.

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1 Another analogy might be equivalent to
2 a cardiac stress test in which you exercise heavily
3 on the treadmill to try and induce potential changes
4 of ischemia of the heart. While the leg muscles
5 function in much the same analogous way, whereas,
6 there is no EKG of the leg muscles, the symptom is
7 pain.
8 Q. So is what you're saying that people can have
9 occlusion of their leg arteries to some extent and
10 still, depending on what their job is, perform their
11 job and not be disabled?
12 A. Correct.
13 Q. And intermittent claudication can be relieved
14 by rest; right?
15 A. Yes.
16 Q. Okay. So you could, even people who have
17 somewhat more strenuous jobs, could work a while,
18 get leg pain, rest a while and then go back to
19 working a while; right?
20 A. Yes. And they can go back to work but the
21 pain, it will probably be highly reproducible as
22 soon as they resume the preceding level of activity.
23 Q. Experiencing pain in the lower extremities due
24 to intermittent claudication, I mean, that doesn't

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1 make the condition pathologically worse, does it?
2 A. As far as we know, no, it does not.
3 Q. Okay. Intermittent claudication is a symptom,
4 is it not?
5 A. Yes.
6 Q. And by that, isn't it fair to say that that's
7 what the patient tells you they're having? It's
8 like a headache. If I tell you I have a headache,
9 there's no objective way to ascertain whether I'm
10 telling you the truth or not, it's just that I say I
11 have a headache and you have no reason to believe
12 I'm lying to you?
13 A. That's correct, although I would add that
14 because it does require some degree of stenosis if
15 not total occlusion to get intermittent
16 claudication, while you take the patient's symptoms
17 at their word, you can do a physical examination
18 which can confirm whether or not the patient has the
19 appropriate signs that correspond with that
20 claudication.
21 Q. And in fact, there are certain tests that you
22 would customarily run if somebody came in with those
23 complaints; right?
24 A. Yes.

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1 Q. One of those tests, and I guess the most
2 invasive, would be an arteriogram, but you wouldn't
3 -- I mean, that wouldn't be your first choice, but
4 that is, I assume, the gold standard for determining
5 whether somebody has occlusion of their leg arteries
6 is to run an arteriogram on them; right?
7 A. That is one method of doing that.
8 Q. And is that the method that is the most
9 reliable for determining arterial occlusion in the
10 legs?
11 A. No, I can't say that because some of the new
12 -- the new technology may be able to be just as
13 reliable in terms of diagnosing an occlusion. It
14 doesn't replace arteriograms because you still need
15 arteriograms to provide precise localization and
16 planning of surgery. But I think there are ways of
17 -- that are as reliable as arteriography, and
18 that's why I had some pause when you said it was the
19 gold standard.
20 Q. Okay. What other methods are as reliable, in
21 your opinion?
22 A. The use of ultrasound is the primary method,
23 and there are a number of modalities in which
24 ultrasound can be used to determine whether or not

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1 there is flow, to determine what the velocity of
2 flow is because the physics of occlusions are such
3 that they change the velocity of flow in ways that
4 can be detectable by ultrasound.
5 Q. Ultrasound is not an invasive technique, I
6 take it?
7 A. Correct.
8 Q. Is there a measure of arterial occlusion in
9 the lower extremities known as the AA brachial
10 index?
11 A. Yes.
12 Q. Could you tell us what that is? What do the
13 "A" and the "A" stand for, first of all?
14 A. The "A" is the ankle and the arm.
15 Q. Okay.
16 A. And the basis of the ankle/arm index is that
17 peripheral vascular disease occurs predominantly in
18 the lower extremities and the upper extremities are
19 relatively spared. Under normal circumstances, the
20 blood pressure in both the upper extremities and the
21 lower extremities is comparable. The typical method
22 of taking the blood pressure involves applying a
23 cuff to the extremity and then listening over the
24 artery and then determining the critical pressure at

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1 which you hear the flow.

2 In the presence of arterial occlusions,

3 that method falls down. And what the AA index

4 enables you to do is use ultrasound rather than the

5 audible sounds to determine the flow and, thus,

6 develop comparative blood pressure measurements in

7 the ankle and the arm, working them into the

8 assumption. Still, in any given patient, they're

9 not likely to have upper extremity vascular disease,

10 then the arm becomes the denominator and the ankle

11 becomes the numerator. Under normal circumstances

12 the ratio should be one because both numbers are

13 equal. And patients with peripheral occlusive

14 disease, the ankle pressure decreases and so you get

15 a ratio, depending upon the severity of occlusion,

16 somewhat less than one.

17 Q. And there have been certain approaches that

18 have attempted to categorize people as having

19 greater or lesser occlusive disease based on some

20 selection of a ratio like point 8 or point 9. Are

21 you familiar with those studies generally?

22 A. Yes. People from time to time have argued

23 over what the appropriate threshold is.

24 Q. Okay. Is the ankle/arm brachial index a more

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1 objective way of determining whether someone has
2 peripheral arterial occlusive disease than
3 intermittent claudication description?
4 A. Probably.
5 Q. Okay. We talked briefly about arteriograms,
6 intermittent claudication, ultrasound and the ankle/
7 arm brachial index. Are there other methods -- let
8 me ask you about one other. You can, in fact, take
9 pulses of the ankle, I guess, and other portions of
10 the lower extremities. Is that a useful technique
11 for determining whether there's arterial occlusion
12 in the lower extremities?
13 A. It is useful, although there are times when
14 there are clinical situations in which the pulses
15 may not be palpable. Furthermore, we know from
16 clinical experience that the pulses are a
17 qualitative measure. But even when they're there,
18 it's sometimes hard to say whether it's a hundred
19 percent normal pulse.
20 And where the ultrasound comes in, of
21 course, is that instead of being a qualitative
22 measure it makes it a quantitative measure among
23 patients who have palpable pulses and it is
24 certainly the only measure that can be used in

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1 people who do not have palpable pulses.
2 Q. Another one of the -- well, let me ask another
3 question. Are there causes for people to experience
4 what could be generally described as intermittent
5 claudication other than peripheral arterial
6 occlusive disease?
7 A. Yes.
8 Q. Tell me, to the extent you recollect, what
9 some of those differential causes might be?
10 A. One of the more frequent causes is a condition
11 known as spinal stenosis. And in this situation,
12 the nerve roots as they emerge from the spinal canal
13 become pinched. And when the individual exercises,
14 the pinching, when they reach a certain point,
15 produces pain in the extremities. And on the basis
16 of symptoms alone, often the two are
17 indistinguishable.
18 Q. Okay. Are there other causes besides spinal
19 stenosis?
20 A. There may be but I'm not familiar with it.
21 Q. That's your main differential?
22 A. (Witness nods head.)
23 Q. You have to answer for the record.
24 A. Yes.

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1 Q. Now, is it fair to say that -- well, let me
2 just make reference to the sentence. "The
3 prevalence of intermittent claudication among middle
4 aged and elderly people in developed countries is
5 about two percent." I want to ask you about the two
6 terms this author uses, middle aged and elderly. Is
7 it fair to say that the prevalence of peripheral
8 arterial occlusive disease increases with age?
9 A. Yes.
10 Q. Of the two percent number there that this
11 author uses, do you know what percentage of that
12 group would be over 65 as opposed to under 65?
13 A. No.
14 Q. Based on your clinical experience in surgery
15 of peripheral arterial occlusive disease, what has
16 the breakdown in your experience been with respect
17 to the percentage of patients that you operate on
18 who are under 65 versus over 65?
19 A. Well, we -- you're talking about for
20 intermittent claudication. We don't -- we actually
21 don't operate all that much for intermittent
22 claudication unless it becomes disabling.
23 Q. But -- I understand.
24 A. But getting back to your question, this is

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just a real estimate as to say that not defining what the age boundaries of middle-aged versus elderly are . . .

Q. Right. It gets higher every year for me.

A. That's right. That's -- I'm waiting for you to get to the age where you'll be pushing the envelope with me. You'll -- I would say that it's anywhere five to ten times as common in the elderly as it is in the middle-aged. I mean, those terms otherwise undefined.

Q. Okay. Well, you understand, the reason I'm using 65 is because for purposes of this case, 65 is a -- may be an arbitrary cutoff but it is a cutoff point because Medicaid stops and Medicare starts.

MR. MIKHAIL: Mostly Medicaid stops.

Q. Yes. But that's the reason I'm using the term 65. I mean, is there any way to put more of a percentage number on it than what you have done? I'm not trying to ask you to do the impossible but it would be useful for purposes of this case.

A. Well, I don't have those figures off the top of my head. They give references here, and I'm not familiar with the references, but if you were seeking that information, it might be if someone --

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1 it may be perhaps reference three or reference
2 four. I'm just looking at the title. Or even
3 reference six might be large screening studies.
4 Most articles on peripheral occlusive disease in the
5 surgical literature are patients who are already
6 sufficiently symptomatic to require some surgical
7 attention. But one would have to go out and screen
8 the entire population to really derive the true
9 prevalence.
10 Q. Do you believe -- this is just sort of a
11 tangential point but it may be a good place to ask
12 this question -- you talked about reference six
13 which is the Framingham study, do you believe that
14 the Framingham study percentages of individuals with
15 peripheral arterial occlusive disease can be
16 generalized to the Medicaid population in
17 Mississippi, if you understand what I'm asking?
18 A. Yes, I'd be reluctant to generalize them.
19 Q. Okay. Partly, I take it, because there would
20 be a variety of different living conditions,
21 socioeconomic statuses, risk factors that might play
22 a role in different populations or in populations as
23 different as Framingham and Mississippi Medicaid;
24 right?

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1 A. Yes.
2 Q. The Framingham study looked at an end point
3 for peripheral arterial occlusive disease of
4 intermittent claudication rather than any more sort
5 of specific diagnostic technique. Let me ask this
6 question: Are you familiar with studies that looked
7 at more objective measures of determining arterial
8 occlusive disease . . .
9 A. No.
10 Q. . . . than Framingham's?
11 A. No.
12 Q. Just as a follow-up to the spinal stenosis,
13 you actually wrote an article on that subject some
14 years ago; is that correct?
15 A. Yes.
16 Q. You also wrote an article a while back, and
17 let me show you a copy of that, entitled Detrimental
18 Effect of High Dose Prostaglandin E1 -- that's E
19 sub 1 if you want to make the record correct -- In
20 The Treatment of Ischemic Ulcers in the Surgery
21 Journal in 1983, June of 1983. And there you looked
22 at several patients who had ischemic ulcers and you
23 had over on the results section on page 840 you had,
24 I believe, four patients in each group, placebo

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group and the prostaglandin E1 group, and you indicate that arteriosclerosis obliterans ASO was the cause of ischemia in three of the four patients in each group.

First of all, tell me what arteriosclerosis obliterans is with respect to the various terms we've been using today?

A. That's a big scientific word for occlusive arterial disease.

Q. Okay. So peripheral arterial occlusive disease and arteriosclerosis obliterans would be the same thing except peripheral arterial occlusive disease would be in the periphery?

A. Yes.

Q. Is arteriosclerosis obliterans sort of taken as peripheral disease or is that more general?

A. I think that term refers to the process no matter where it could take place, whether it would be in the thoracic artery, in the coronary arteries or wherever. That is the pathologic process.

Q. You mentioned that another person in the placebo group had something called rheumatoid vasculitis. Is rheumatoid vasculitis a disease that can affect the peripheral arteries?

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1 A. Yes.
2 Q. Does it affect it the same way that occlusive
3 arterial disease does?
4 A. Well, it produces the same signs and symptoms
5 because those are of ischemia related to decreased
6 blood flow. The pathologic processes is probably
7 vastly different but the end result is the same.
8 Q. Okay. And so I take it that when you're
9 looking at someone for purposes of potential
10 surgery, you have to determine what the cause of
11 their ischemia is?
12 A. Correct.
13 Q. And is hypersensitivity angiitis also, can
14 that also affect the peripheral arteries?
15 A. I'm not sufficiently familiar with that to
16 know.
17 Q. Okay. Do you know what the -- I'll save that
18 question, ask that a little later. Let me talk to
19 you for just a second about another article that you
20 wrote, and that is in a publication called Surgical
21 Care of the Elderly. And you wrote chapter 28 of
22 that book Vascular Surgery in the Elderly, and this
23 was published in 1988.
24 First of all, the first sentence of

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1 that book chapter says "Atherosclerotic degeneration
2 occurs with age even in the absence of traditional
3 risk factors such as smoking, hypertension,
4 hyperlipidemia, diabetes or heredity." First of
5 all, you used the term atherosclerotic there. An
6 earlier article we talked about used the term
7 arteriosclerotic. Distinguish between those two if
8 you would for me.
9 A. A lot of times they're used interchangeably.
10 Atherosclerotic probably refers to the specific
11 pathologic process. Arteriosclerotic may describe
12 the same process but within arteries or within
13 certain size arteries.
14 Q. Okay. But atherosclerosis is the basic
15 pathologic process that . . .
16 A. Yes, for all intents and purposes, there's no
17 distinction between them.
18 Q. And I believe that very early in your
19 deposition you said that first sentence to me in a
20 slightly different way and that is, if you do
21 autopsies on old people, you will find degenerated
22 arteries; right?
23 A. Yes.
24 MR. MIKHAIL: On dead people.

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1 MR. McELVEEN: Right, old deceased
2 people. We don't like to think of that latter
3 term. Off the record just one second.
4 MR. MIKHAIL: Yes.
5 (A discussion was held off the record.)
6 BY MR. McELVEEN:
7 Q. Do you believe, Dr. Rhodes, that smoking,
8 hypertension, hyperlipidemia, diabetes and heredity
9 are all risk factors for the development of
10 peripheral arterial occlusive disease?
11 A. Yes.
12 Q. We've discussed hyperlipidemia in other words
13 here today. Tell me for the record what
14 hyperlipidemia is?
15 A. Hyperlipidemia is a generic term that is
16 designed to include a number of disorders of fat
17 metabolism. It may involve hypercholesterolemia,
18 hypertriglyceridemia. There are a number of other
19 compounds which fall into the general category of
20 lipids. And each one of those specific compounds
21 has been in some way, shape or form associated with
22 peripheral vascular disease.
23 Q. So that elevated triglycerides, for example,
24 have been associated with peripheral vascular

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1 disease?
2 A. Yes.
3 Q. And elevated low density lipoprotein
4 cholesterol has been so associated?
5 A. Yes.
6 Q. And low levels of high density lipoprotein
7 cholesterol has been associated?
8 A. Yes.
9 Q. And very low density lipoprotein cholesterol,
10 VLDL, has been associated with peripheral vascular
11 disease?
12 A. Yes.
13 Q. Alpha lipoprotein A has been associated with
14 peripheral vascular disease?
15 A. Well, you're now getting to the point where
16 you may know some of those things better than I do.
17 I'll take your word on that.
18 Q. You have no opinion on that issue; right?
19 A. Right.
20 MR. MIKHAIL: Do I get to cross-examine
21 you on all your knowledge, J. C.?
22 MR. McELVEEN: No.
23 Q. Does elevated fibrinogen, has that been
24 associated with the development of peripheral

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1 vascular disease?
2 A. I'm -- I'm trying to recall. And I can't
3 answer your question because I can't recall,
4 certainly not seeing a case or reading about a case
5 in which hyperfibrinogenemia as an isolated factor
6 was involved. It may be.
7 Q. As long as we are talking about that, let me
8 show you an article which is not written by you but
9 which talks about that topic a little bit and ask
10 you, first of all, if you'd just read the abstract
11 to yourself.
12 A. (Witness reviews document.) Okay.
13 Q. First of all, let me represent to you what
14 this article is not. This article, as far as I can
15 tell, does not devote itself to peripheral vascular
16 disease specifically but more generally
17 cardiovascular disease. Is that your reading of the
18 abstract, at least?
19 A. Yes.
20 Q. Okay. Secondly, does this article associate
21 fibrinogen with cardiovascular disease more
22 generally?
23 A. I believe it does.
24 Q. Okay.

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1 A. That's just reading the abstract.
2 Q. Right. I understand.
3 A. I'm reading their conclusions. I'm not
4 analyzing their data.
5 Q. Right. I understand that. And in fact, I
6 would represent to you and so would your lawyer that
7 if you need to read the whole article or want to,
8 feel free to do that and we'll take some time for
9 you to do it but these may be such general questions
10 that you don't have to.
11 MR. MIKHAIL: Let's just take it
12 question by question and see.
13 MR. McELVEEN: Okay. That's fine.
14 Q. This article also mentions in its title
15 something called factor VIII. What is factor VIII?
16 A. Well, you're asking questions that remain with
17 every medical student since the dawn of man.
18 Someone studying the blood system began, through
19 their research, to identify a number of different
20 factors that were involved in the blood system. And
21 as they identified these, they gave them numbers.
22 Unfortunately, they didn't give them numbers in the
23 sequence in which they actually play a role in the
24 clotting system. And furthermore, there are two

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1 types of clotting systems and some of these factors
2 are involved in one of the clotting systems and not
3 in the other and vice versa.
4 So what we have to do is memorize what
5 the sequence of these things is not in order in
6 which group they go with and it is something one
7 does immediately before examinations and then
8 forgets forever and all time. The short answer is,
9 factor VIII is one of the clotting factors.
10 Q. Okay. I was trying to give you some ideas for
11 your next surgery boards. But in any event . . .
12 THE WITNESS: Can we go off the
13 record?
14 MR. McELVEEN: Surely.
15 (A discussion was held off the record.)
16 BY MR. McELVEEN:
17 Q. So at least with respect to your review of the
18 abstract of this article, these authors conclude, I
19 take it, that fibrinogen and one of the blood
20 clotting factors, factor VIII, are associated with
21 measures at least of subclinical cardiovascular
22 disease in the elderly; correct?
23 A. Yes.
24 Q. Is there any reason to believe that a risk

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1 factor that is a risk factor for cardiovascular
2 disease generally would not be a risk factor for
3 peripheral vascular disease?
4 A. No.
5 Q. Let me go back, then, to the article that you
6 wrote, Vascular Surgery in the Elderly, and ask you
7 this more general question. You've identified five
8 risk factors that you believe are risk factors for
9 the development of peripheral vascular disease in
10 that first sentence. Are there other risk factors
11 that you believe are risk factors for the
12 development of peripheral vascular disease?
13 A. Yes, but they're relatively infrequent.
14 Q. Tell me what they are, to the extent you
15 recall.
16 A. The one that comes to mind is a disorder of
17 homocysteine metabolism. That's spelled
18 h-o-m-o-c-y-s-t-e-i-n-e, I believe. Homocysteine is
19 one of the amino acids in the body and there is a
20 set of circumstances in which some individuals have
21 a disorder of the metabolism of homocysteine that
22 somehow translates into peripheral vascular disease.
23 Q. Do you believe that lack of exercise or
24 sedentary activity is a risk factor for the

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1 development of peripheral vascular disease?
2 A. No.
3 Q. Do you believe that what's variously been
4 described as type A personality or certain
5 personality characteristics are risk factors for
6 peripheral vascular disease?
7 A. I'm not totally familiar with that
8 literature. I know there's an association between
9 it as it relates to cardiovascular disease or, let
10 me -- instead of cardiovascular, coronary artery
11 disease. I'm not familiar with it as it relates to
12 peripheral vascular disease.
13 Q. You call smoking here in this article in 1988
14 a risk factor for the development of atherosclerotic
15 degeneration, and yet in your report that we've
16 looked at that's Exhibit 3, you call it a cause of
17 peripheral vascular disease. Why did you use risk
18 factor the one time and cause the other?
19 A. Well, I didn't write that document.
20 Q. You mean Exhibit 3?
21 A. Exhibit 3.
22 Q. Right.
23 A. So that's not my language and I believe when
24 we were discussing it, I used some other terms

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1 rather than saying absolute single-agent cause.
2 Q. And so I take it that you don't believe that
3 cigarette smoking is an absolute single-agent cause
4 for the development of peripheral vascular disease
5 based on what you said; correct?
6 A. There are some patients in which it is
7 sufficient.
8 Q. With respect to those patients, would you draw
9 the conclusion that it's sufficient simply by virtue
10 of the fact that, A, they have peripheral vascular
11 disease; B, they were a smoker and; C, they had no
12 other risk factors?
13 A. That's the usual basis for that conclusion,
14 yes.
15 Q. But you'll agree with me, won't you, that even
16 all the known risk factors for peripheral vascular
17 disease really don't account for a very large
18 percentage of the variance between people that don't
19 have PVD and people that do?
20 A. Well, there -- I grant you that there is some
21 variance and we don't understand all the factors
22 that account for them.
23 Q. Do you know the percentage, the approximate
24 percentage of variability that are accounted for by

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1 the known risk factors for PVD?
2 A. No, but that's partly due to the fact that I'm
3 not familiar with the study which is comprehensively
4 looked on an individual basis, not on a population
5 basis but on an individual basis, every one of those
6 risk factors.
7 Q. To your knowledge, is there such a study?
8 A. There could be. I'm just not familiar with
9 it.
10 Q. But as we sit here today, you don't know where
11 to point me to such a study; right?
12 A. Correct.
13 Q. Dr. Blackburn made a distinction in his
14 testimony which you may recall about risk factors
15 for populations versus risk factors for
16 individuals. Do you remember that line of
17 testimony?
18 A. Vaguely, yes.
19 Q. Do you believe that in the area of peripheral
20 vascular disease different risk factors predict
21 population risks than predict individual risks?
22 A. Well, the -- I mean, individuals get the
23 disease. Population studies are limited in how they
24 can take those factors into account. I mean, I

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1 don't think there are a different set of risk
2 factors for populations than there are for
3 individuals, it's just population studies have a
4 summation of individual risk factors, but population
5 studies often suffer from the weaknesses that
6 because they're studying such a large number of
7 people, it's in very limited detail. And specific
8 factors such as you can -- let's say the incidence
9 of diabetes in the population doesn't necessarily
10 mean that if it's 35 percent doesn't mean that every
11 patient in the study has 35 percent diabetes. And
12 other factors such as heredity are very difficult to
13 account in population studies.
14 Q. You use that term heredity, that's a very
15 broad term. With respect to peripheral vascular
16 disease, what do you believe is or are the
17 hereditary risk factors?
18 A. Well, I'm not sure I'm going to be able to
19 answer your question any better because I'm not
20 familiar with the -- how that works. But it is
21 clear to me from my clinical experience that there
22 are some people who have atherosclerosis and
23 peripheral occlusive disease prematurely and when
24 you examine their history, in fact, their parents

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1 also had it prematurely. And that I think they
2 probably inherited the propensity for it. Now, how
3 that propensity specifically translates into a
4 pathologic process and so forth, I can't tell you.
5 Q. Right. But in your opinion, there is some
6 genetic component somewhere with regard to
7 peripheral vascular disease, propensity being
8 transferred intergenerationally?
9 A. Yes. Yes.
10 Q. Are there other features of the metabolism of
11 sugars short of diabetes that are predictive of
12 peripheral vascular disease?
13 A. There may be but I'm not familiar with them.
14 Q. In light of the variety of risk factors that
15 we've talked about here, wouldn't it be necessary,
16 in your opinion, in order to ascertain the
17 proportion of -- well, let me rephrase that. That's
18 going to be a very complicated question.
19 In the Medicaid population of
20 Mississippi with regard to the issue of peripheral
21 vascular disease, isn't it fair to say that in order
22 to determine the proportion of those Medicaid costs
23 attributable to smoking, you would need to evaluate
24 each patient?

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MR. MIKHAIL: I object to the form in that Dr. Rhodes is not being proffered as an expert on the calculation of damages or health care costs. He's already testified to that and his statement doesn't include any such testimony.

MR. McELVEEN: Right. Okay.

Q. You can answer to the extent you can.

A. Read the question back to me, if you would.

(The pending question was read by the court reporter.)

A. No, not necessarily.

Q. Tell me how, other than doing that, it could be done?

MR. MIKHAIL: Again, I would object to the form but Dr. Rhodes can try. But I object. He's not proffered as an expert in that.

A. No, I'm not an expert in that area. The basis of my opinion about smoking and peripheral vascular disease is that the -- we see patients who have reached the stage where they're symptomatic so we're either doing an operation to bypass occluded vessels or doing an amputation. And I can't recall in my career ever having to undertake either a bypass operation or any of the other operations we do for

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1 symptomatic vascular disease or an amputation in a
2 nondiabetic who was not a smoker.
3 What that translates to is that given
4 all the other risk factors that if we don't see
5 medical costs at least for peripheral vascular
6 disease occurring in the absence of smoking as an
7 also present risk factor, then I think one might be
8 able to make the calculations on that basis.
9 Q. Okay. Let me ask you this follow-up question,
10 though. Even as in the situation that you have
11 described, wouldn't it be necessary to determine the
12 portion of the population that was diabetic?
13 A. I think because diabetes can produce
14 peripheral vascular disease exclusively . . .
15 Q. Right.
16 A. . . . in the absence of smoking, yes, I think
17 you'd have to distinguish between the two. Now,
18 this gets a little bit more complicated because
19 there are some diabetics -- let me back up a
20 minute. Diabetes is not the uniform disease that
21 we'd like to think it to be. There are some people
22 who have, quote, unquote, diabetes for a long period
23 of time that don't get peripheral vascular disease
24 and actually the distribution of their peripheral

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1 vascular disease is more typical of someone with
2 nondiabetic peripheral vascular disease. They just
3 happen to have diabetes.
4 Q. Right.
5 A. There is another group of people who have,
6 quote, unquote, diabetes who get severe peripheral
7 vascular disease in the absence of other risk
8 factors. So it's probably not sufficient simply to
9 say that diabetes, because all diabetes in its
10 relation to peripheral vascular disease is not the
11 same.
12 Q. Okay. I think you've answered this question
13 but let me just go back for a moment if I may. Are
14 there people who are nonsmokers and who are
15 nondiabetics but who have sugar metabolism disorders
16 that develop peripheral vascular disease?
17 A. Yes, there is data but I'm not familiar with
18 it.
19 Q. In this article, Vascular Surgery in the
20 Elderly, let me ask you -- well, let me go ahead and
21 follow this up and then I'll ask you the other.
22 I'll forget it, though. In this article, Vascular
23 Surgery in the Elderly, you talk about a group of
24 people called "the elderly" and you make in this

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1 article a statement that says "The United States
2 Census Bureau has predicted that the population
3 between the ages of 65 and 85 will more than double
4 to greater than 25 million by the year 2025."
5 MR. MIKHAIL: That's in the first
6 paragraph.
7 Q. In the first paragraph there.
8 A. Yes.
9 Q. Did you mean in this article to refer to the
10 elderly as those who were over 65 years old?
11 A. No, probably in this article, it was probably
12 used in a more generic sense and I don't think we
13 specifically included or excluded any reference
14 based on the average age of the patients in the
15 study.
16 MR. McELVEEN: Okay. Do you want to
17 take a couple-minute break?
18 MR. MIKHAIL: That's fine.
19 Q. I'm going to ask one more little short series
20 of questions. Do you want to just do that and then
21 take five minutes or something?
22 A. It's up to you.
23 Q. Why don't we go ahead then for just a second
24 because I'm on a semi roll here.

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1 MR. MIKHAIL: That's fine.

2 Q. Did you, in your practice at the University of
3 Mississippi Medical Center, deal with Medicaid
4 patients?

5 A. Yes.

6 Q. Tell me what Medicaid costs were incurred,
7 from your perspective, now, from your perspective as
8 a vascular surgeon, in Medicaid patients as a result
9 of peripheral vascular disease? Let me narrow the
10 question a little bit if I can. You said a little
11 earlier that there were basically two sorts of
12 procedures that you did on peripheral vascular
13 disease patients, one being bypass surgery of the
14 lower limb arteries and the other being
15 amputations. Other than those two categories of
16 procedure, are there other procedures that you would
17 have performed on Medicaid patients for peripheral
18 vascular disease?

19 A. I think in terms of large classes, that will
20 pretty much cover it. There are some with
21 cerebrovascular disease, that's primarily being
22 arteriosclerosis of the carotid arteries, they're
23 the rare patients that have other than -- but I
24 think those, the amputation or some type of bypass

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1 or some procedure to either bypass or relieve an
2 occluded artery are going to constitute the vast
3 majority.
4 Q. Of costs associated with Medicaid patients and
5 PVD?
6 A. Yes. Yes.
7 Q. Do you consider cerebrovascular surgery
8 peripheral vascular disease surgery?
9 A. Yes. Yes.
10 Q. Do you believe that cigarette smoking causes
11 stroke?
12 A. Yes.
13 Q. Do you believe it causes all kinds of stroke,
14 all types of stroke?
15 A. I can't say that it cause -- I think it causes
16 all kinds of stroke.
17 Q. I'm sorry, what was your answer to that last
18 question?
19 A. Well, you asked me if smoking causes stroke,
20 causes all kinds of stroke.
21 Q. Yes.
22 A. And there are some types of stroke called
23 occlusive strokes which the blood flow gets shut off
24 to the brain. And there are other types of stroke

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1 in which the blood vessels burst and there's
2 hemorrhage. Of the latter type, they're usually
3 more associated with hypertension or hypertension is
4 -- an uncontrolled hypertension is the sole factor.
5 Q. So hemorrhagic stroke would not be caused by
6 cigarette smoking but occlusive stroke would be, in
7 your opinion?
8 A. I would modify that to say that I think
9 cigarette smoking is more likely to play a major
10 role in occlusive stroke and less likely to play a
11 role in hemorrhagic stroke. But I am not a
12 neurologist so I would defer absolute expertise on
13 that.
14 MR. McELVEEN: Why don't we take two or
15 three minutes.
16 MR. MIKHAIL: Fine.
17 (A recess was taken from 11:23 to
18 11:30 a.m.)
19 BY MR. McELVEEN:
20 Q. Doctor, we're back on the record. Let me
21 continue a little bit and ask you about some
22 questions on Vascular Surgery in the Elderly. First
23 of all, at the top of the second page of that
24 article, you indicate that in younger patients,

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1 there is a male predominance of peripheral vascular
2 disease. I think I'm reading that correctly from
3 the context.
4 A. Yes.
5 Q. What is the approximate male predominance
6 percentage-wise in the younger population?
7 A. It's probably in the neighborhood of anywhere
8 from five to ten to one. We're talking about in
9 the, even though there's a male predominance, it's
10 really based on female menopause.
11 Q. Tell me what you mean by that.
12 A. I think people believe that women are
13 protected by estrogens and that when their own
14 estrogen production decreases and in the absence of
15 exogenous estrogen that they are then exposed to the
16 same risk factors as men and so that the
17 predominance of men beyond menopause is less than it
18 is before menopause.
19 Q. Okay. But before menopause, the predominance
20 is five or ten to one?
21 A. That would be my guess.
22 Q. Okay. You talk about nonvascular conditions
23 which may produce symptoms very similar to those of
24 peripheral vascular disease and you discuss lumbar

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1 spinal stenosis which we've already talked about.
2 You also talk about peripheral neuropathy. Tell us
3 what that is?
4 A. Peripheral neuropathy is a state of altered
5 sensation in which the -- in the case in which one
6 perceives pain that the patient may have pain from
7 the neuropathy and may also have some peripheral
8 vascular occlusions. In the progression of
9 peripheral vascular disease, we have intermittent
10 claudication that we previously discussed and then
11 if the occlusions progress to the point where blood
12 flow is below the level necessary to maintain the
13 oxygen delivery for resting metabolism, then the
14 individual starts to experience pain at rest.
15 Sometimes it's very difficult to
16 distinguish between the pain of peripheral
17 neuropathy which may have normal or adequate levels
18 of blood flow versus people who have some vascular
19 occlusions and whether the severity of vascular
20 occlusions is great enough to produce ischemic rest
21 pain versus whether they're having peripheral
22 neuropathy in association with otherwise
23 asymptomatic vascular occlusions becomes a
24 diagnostic and therapeutic dilemma. Because

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1 operations to bypass the occluded arteries will
2 relieve ischemic rest pain but they'll probably do
3 very little for peripheral neuropathy.
4 Q. Okay. You mentioned that peripheral
5 neuropathy is most common among diabetics but isn't
6 peripheral neuropathy also a problem with
7 alcoholics?
8 A. Sometimes. But it is far more common among
9 diabetics in the clinical population that we're
10 dealing with and neuropathy in alcoholics is truly
11 an end stage of the process and associated with a
12 whole bunch of other nutritional problems and other
13 issues. So I -- if you're asking if you saw a
14 patient with peripheral neuropathy, are they more
15 likely to be diabetic or alcoholic, it's clearly
16 more likely to be diabetic.
17 Q. Is alcohol or alcoholism a risk factor for the
18 development of peripheral vascular disease?
19 A. Not that I know of.
20 Q. Okay. You mention in one of your articles the
21 fact of recurrent trauma, and I'm trying to put my
22 hand on that article, trauma as a recurrent disease
23 or trauma is a recurrent disease. Let me see if I
24 can give you a copy of that article and also give a

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1 copy to your counsel here. That is an article that
2 you wrote and published in Surgery magazine in
3 1993.
4 First of all, let me ask you this: You
5 conclude in that article, and this is reading from
6 your abstract, that "Trauma is a disease with a high
7 risk of recurrence. This may be related to chronic
8 high-risk behavior such as alcohol or drug abuse,
9 preexisting psychopathology, and cultural acceptance
10 of violent resolutions of personal conflicts, all of
11 which adversely affect patients' lives."
12 First of all, let me ask you this: Do
13 you believe that trauma is a risk factor for
14 peripheral vascular disease?
15 A. No.
16 Q. Do you believe that peripheral vascular
17 disease can be aggravated by leg injury?
18 A. Yes.
19 Q. Tell me how that could occur.
20 A. If you have an individual, let's say, that has
21 a subclinical occlusion of a vessel or some
22 preexisting vascular disease and they're injured in
23 such a way so that the injury injures the collateral
24 vessel, then it will make the vascular insufficiency

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1 manifest when it would -- when there actually has
2 not been any progression of the atherosclerosis,
3 it's just injury of the vessel which was . . .
4 Q. Taking up the slack, so to speak?
5 A. . . . taking up the slack, yes.
6 Q. Have you had to operate on such patients?
7 A. I'm trying to remember a specific patient. I
8 may have but I can't recall a specific patient.
9 Q. Let me go back for a second to another point
10 that we were talking about a minute ago and that is
11 alcohol or alcoholism. Can alcohol or alcoholism
12 aggravate peripheral vascular disease as opposed to
13 be a risk factor for its causation?
14 A. Not that I'm aware.
15 Q. Does alcohol have any effect on the caliber of
16 blood vessels?
17 A. I am told that alcohol is a vasodilator.
18 Q. Okay. We talked a little bit about the
19 trauma, we talked a little bit about alcohol and
20 alcoholism. Are there other factors which you
21 believe can serve to make an otherwise asymptomatic
22 patient into a symptomatic one other than trauma?
23 A. A symptomatic and asymptomatic, what type of
24 patient?

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1 Q. Peripheral vascular disease patient. In other
2 words, your testimony, I believe, with respect to
3 trauma was someone could be asymptomatic if their
4 collaterals are destroyed or in some way affected by
5 trauma, that could make that patient who otherwise
6 was getting by into a surgical candidate; right?
7 A. Yes.
8 Q. Are there other conditions or situations that
9 you believe, other than trauma, that could make an
10 otherwise asymptomatic patient into a surgical
11 candidate from a peripheral vascular disease point
12 of view?
13 A. Yes.
14 Q. What would that be?
15 A. Well, I think a partial list would include
16 sometimes if the patient has a decompensation in
17 their cardiac status. In other words, let's say
18 their heart is functioning normally and this normal
19 heart function there's an integral component of the
20 collaterals which are supplying blood supply to the
21 limb and they have a heart attack, and all of a
22 sudden their heart function diminishes. That
23 diminished heart function may not be capable of
24 maintaining the same degree of blood flow, even

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1 though the peripheral situation hasn't changed.
2 Q. Okay.
3 A. And then the peripheral situation becomes
4 symptomatic. Okay. That's one example. Another
5 example might be simply progression of the disease.
6 I mean, there are, you know, once somebody may be
7 asymptomatic at a point in time but that doesn't
8 mean that they will forever remain so. And one of
9 the issues, of course, is that there is progression
10 of the disease. And that can convert an
11 asymptomatic patient to a symptomatic patient.
12 Q. Are there others that you recall?
13 A. There may be but those are the two that
14 immediately come to mind.
15 Q. Let me take you back to the article that you
16 were looking at, Vascular Surgery in the Elderly,
17 because you talk about cardiac decompensation later
18 in that article on page 415. About the middle of
19 the page you say "Symptoms of peripheral vascular
20 disease may also fluctuate with changes in the
21 patient's cardiac status or medication." You go on
22 to say "Claudication may increase or the onset of
23 rest pain may be noted as cardiac output falls as a
24 result of myocardial infarction or the worsening of

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1 congestive heart failure." Does cigarette smoking,
2 in your opinion, cause congestive heart failure?
3 A. I believe it contributes to it, yes.
4 Q. In what way?
5 A. I'm not an expert on the heart since I mostly
6 deal with peripheral vascular disease but I believe
7 smoking causes atherosclerosis of the coronary
8 arteries and then the loss of blood supply to parts
9 of the myocardium affect its function.
10 Q. There can be causes for congestive heart
11 failure, though, that are not caused by coronary
12 artery disease, can there not?
13 A. Yes, correct.
14 Q. For example, people with pulmonary fibrosis
15 can have congestive heart failure as a result of
16 pulmonary artery insufficiency, right, or
17 right-sided heart failure, so to speak?
18 A. Yes, right-sided heart failure is probably
19 more correct.
20 Q. Okay. In addition, you mention that
21 alterations in potential peripheral vascular systems
22 in response to cardiovascular medications may also
23 provide healthful occlusion regarding their
24 etiology. Tell me the circumstances under which a

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1 medication could have an effect on peripheral artery
2 symptomatology?
3 A. An example might be with the class of drugs
4 known as beta blockers. Most specific example would
5 be the drug Propanolol in which its effects on the
6 tone within blood vessels may be such that it can
7 change the collateral circulation or change the
8 cardiac output without changing any specific
9 occlusions.
10 Q. And so somebody may become symptomatic
11 peripherally only after taking a beta blocker?
12 A. Yes. They may have asymptomatic occlusions
13 that become symptomatic if they're taking a beta
14 blocker.
15 Q. Okay. And you can take beta blockers for
16 hypertension; right?
17 A. Yes.
18 Q. And you can take beta blockers for angina?
19 A. Yes.
20 Q. Cigarette smoking, to your knowledge, doesn't
21 aggravate or cause angina, does it?
22 A. Does it aggravate or cause angina? Well, I'm
23 not familiar enough with it to say.
24 Q. Okay. Does cigarette smoking cause or

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1 aggravate hypertension, to your knowledge?
2 A. I would say yes.
3 Q. Okay. You're not familiar with literature
4 that shows that smokers have slightly lower blood
5 pressure than nonsmokers?
6 A. I'm not familiar with it. Your question makes
7 me recall there is some discussion in one of the
8 previous depositions but other than that I was not
9 familiar with it.
10 Q. Okay. On page 416 at the bottom, the reason
11 that I had used the term gold standard, it was
12 because you had originally used it with respect to
13 arteriography down in the section starting with
14 "Arteriography." I take it that as of 1988 you may
15 have believed that but at the present time you
16 believe that it's not necessarily the gold standard?
17 A. Well, there have been tremendous developments
18 in ultrasonography since then so, yes, I would
19 change my opinion based on those subsequent
20 developments.
21 Q. And over on the top of page -- not the top,
22 it's sort of toward the middle of page 417, you make
23 a statement, you see where it starts "It is our
24 practice" in the paragraph just before "The

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1 topic . . ."
2 A. Yes, second paragraph.
3 Q. Right. Then it says "Patients with mild
4 claudication who are not being considered for
5 surgery are diagnosed as having vascular
6 insufficiency on the basis of Doppler pressures
7 and/or pulse volume recordings." Is that still your
8 -- well, at least as of the time you were treating
9 patients, was that still your approach to patients?
10 A. Yes.
11 Q. Is it fair to say based on your experience and
12 in that sentence that even if a patient were to come
13 in complaining of what you clinically would call
14 claudication that before you would diagnose them as
15 having vascular insufficiency you would want to have
16 a Doppler pressure and/or a pulse volume recording?
17 A. Not necessarily if they had absent pulses on
18 the physical exam and the extent of symptoms were
19 not such they were interfering with their life-style
20 or livelihood or producing limb-threatening
21 ischemia.
22 Q. So if a patient were to come in, they
23 complained of what you would call clinically
24 intermittent claudication, you would then do some

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1 other test before you diagnosed vascular
2 insufficiency; right?
3 A. Yes.
4 Q. And that might be as simple as absent pedal
5 pulses?
6 A. Correct.
7 Q. Or if there were present pulses, you would
8 want to do Doppler as a confirmatory test?
9 A. Yes.
10 Q. Okay. Is Doppler the same as the ultrasound
11 that we were talking about a little earlier?
12 A. Yes.
13 Q. We talked a little bit about aortic aneurysm
14 and while we're still in this article, let me ask
15 you to turn over to page 420. You have a section on
16 aortic aneurysm.
17 A. Yes.
18 Q. And let's talk specifically about abdominal
19 aortic aneurysm. You say in the first sentence of
20 that section, "Abdominal aortic aneurysm is a
21 disease of the elderly." And then you quote another
22 author who noted an age range of 44 to 99 years with
23 a median age of 69 years in men and 78 years in
24 women. Tell me based on your experience how many

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1 abdominal aortic aneurysms you have treated in
2 patients under 65 and over 65, if you can recall?
3 A. I think the majority have been over 65. And
4 what the ratio would be, I would think it would
5 probably be -- there are probably going to be about
6 four or five over 65 for everyone that's below 65.
7 Q. Is your procedure for abdominal aortic
8 aneurysms resection?
9 A. When they reach sufficient size, yes.
10 Q. Okay. You talk about at the top of the next
11 page, page 421, "While more than 90 percent of
12 aneurysms of the infrarenal aorta are associated
13 with atherosclerosis, atherosclerosis may not be the
14 primary etiologic factor." Is an abdominal aortic
15 aneurysm and an aneurysm of the infrarenal aorta the
16 same thing?
17 A. The abdominal aorta begins at the diaphragm
18 and the first branches that come off it supply the
19 blood supply to the intestine and the kidneys. So
20 above the point where the blood vessels to the
21 kidneys come off it's suprarenal, and below that
22 point it's infrarenal. And in terms of relative
23 length, there's probably about a quarter of it is
24 suprarenal and three quarters of it is infrarenal.

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1 Q. Okay. Do abdominal aortic aneurysms occur
2 with greater frequency -- well, can they occur all
3 along the aortic . . .
4 A. They can occur all along there but 95 percent
5 of them occur infrarenally.
6 Q. Okay. And you mentioned that there are a
7 variety of causes of aneurysm of the infrarenal
8 aorta and those include traumatic, congenital,
9 syphilitic, mycotic, anastomotic. Do you agree that
10 all those can be causes of abdominal aortic
11 aneurysms?
12 A. Yes.
13 Q. And tell me, I can get through traumatic,
14 congenital and syphilitic. What is mycotic?
15 A. Mycotic means that there's an infection and
16 that the -- for some reason the person has developed
17 a localized infection in the wall, the vessel, and
18 the vessel degenerates as a result of the infection
19 and that degeneration leads to weakness and then an
20 aneurysm.
21 Q. What about anastomotic?
22 A. Anastomotic or -- somebody who's had a
23 previous arterial surgery and either had their own
24 blood vessels connected or have a piece of

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1 prosthetic graft inserted and at the junction of
2 those two, it begins to break down. Again, the area
3 is going to be relatively weaker than as compared to
4 the normal part of the arterial wall, and that may
5 be prone to develop an aneurysm.
6 Q. Okay. And this paper was written I believe in
7 '88. Do you know the current status of the
8 research on the role of copper deficiency or altered
9 enzymatic activity insofar as causes of abdominal
10 aortic aneurysm?
11 A. I know there's still interest in the area but
12 I'm not familiar with this exact data.
13 Q. Okay. Do you believe -- let me ask one other
14 preliminary question. When you say more than 90
15 percent of aneurysms of the infrarenal aorta are
16 associated with atherosclerosis, I take it that all
17 you mean by that is that when you open the patient
18 up, you see some atherosclerotic plaque in the
19 abdominal aorta; right?
20 A. Correct.
21 Q. That doesn't mean, I take it, in light of your
22 subsequent statements, that even though
23 atherosclerosis may be there, atherosclerosis has,
24 in fact, caused that abdominal aortic aneurysm;

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1 right?
2 A. Yes. Aneurysms are somewhat of an enigma.
3 You alluded to it earlier when you referred to
4 atherosclerosis as producing both occlusions and
5 dilations of blood vessels. In general, the average
6 age of patients who have aneurysms is about ten
7 years older than the patients who have occlusions.
8 And there are a lot of theories as to whether
9 aneurysms represent an end stage of subclinical
10 occlusive disease that produces further degeneration
11 or whether there are other specific factors that are
12 involved.
13 And to my knowledge, there is -- nobody
14 still understands the relationship between
15 atherosclerosis and aneurysms except that the
16 described phenomena that they occur in older people
17 still applies.
18 Q. Over on pages 423 and 424 you talk a little
19 bit about something that we've talked about a fair
20 amount already and that is the vascular
21 insufficiency in the lower extremities. You've
22 already described a good bit of what's on page 423.
23 And I just want to reconfirm that it is your current
24 belief as you say at the very top of page 424, "Even

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1 though patients may experience considerable
2 discomfort during exercise, there is no known
3 consequence from these symptoms," and those symptoms
4 being claudication; right?
5 A. That's correct.
6 Q. Okay. Let me ask you this: You talk about
7 some percentages here and refer to a couple of other
8 authors. You mentioned that patients, some patients
9 with claudication, a very small percentage come to
10 an amputation, some 21 percent experienced an
11 increase in symptoms after five years, only 36 had
12 progression in ten years. Are there people who, in
13 your experience, get to a point where they
14 experience some intermittent claudication but for
15 some reason or another don't progress?
16 A. Yes.
17 Q. Are you familiar with situations in which
18 people who, although they continue to smoke, don't
19 progress?
20 A. Yes.
21 Q. You don't know why that is?
22 A. I wish I did.
23 Q. Is a prescription for intermittent
24 claudication more exercise?

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1 A. Yes.
2 Q. What is the basis for that recommendation?
3 A. There are probably two bases for it. One is
4 that the stimulus for developing collaterals is the
5 pressure gradient that exists around the occluded
6 vessel. When one exercises, the local blood vessels
7 in response to the metabolic products of muscle
8 metabolism begin to dilate. In a normal individual
9 who has unoccluded vessels, as they dilate, the
10 increased flow keeps pace with the dilatation and
11 the pressure is maintained.
12 And individuals who have occlusion,
13 because they have restricted flow, the dilation
14 cannot be met by increased flow and therefore, the
15 pressure in those segments drops. That creates a
16 greater pressure gradient across the occlusion and
17 that pressure gradient actually stimulates more
18 collaterals to open up. The second mechanism
19 involved is probably just the conditioning of the
20 muscles to deal with lower amounts of oxygen supply.
21 Q. That is to say that people who are in better
22 physical condition require less oxygen, their
23 muscles use oxygen more efficiently?
24 A. I believe so.

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1 (A discussion was held off the record.)
2 BY MR. McELVEEN:
3 Q. Let me ask you one or two more questions, then
4 we can break for lunch. So is it fair to say, then,
5 that it is still a truism that the vast majority, as
6 you say in the middle of page 424 there at the end
7 of the second paragraph, "The vast majority of
8 patients with mild claudication," you say, "are
9 greatly relieved to know that they do not have
10 limb-threatening ischemia and that it is both safe
11 and beneficial for them to continue exercise." It
12 is, in fact, do you agree, both safe and beneficial
13 for mild claudicants to continue to exercise?
14 A. Yes.
15 MR. McELVEEN: Why don't we break for
16 lunch.
17 (A luncheon recess was taken from 12:10
18 to 1:15 p.m.)
19 AFTERNOON SESSION
20 MR. McELVEEN: I want to ask you to
21 mark the next four items as Exhibits 4 through 7.
22 (Rhodes Deposition Exhibits 4, 5, 6 and
23 7 were marked for identification.)
24 BY MR. McELVEEN:

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1 Q. Dr. Rhodes, I want to ask you to take a look
2 now at an article that was published in Surgery
3 magazine in April of 1995 authored by you and two
4 other authors entitled Effect of patient factors on
5 hospital costs for major bowel surgery:
6 Implications for managed health care. And that's
7 marked number 4 as an exhibit. Tell me, generally
8 speaking, what you were setting out to do in this
9 article?
10 A. The implications of managed health care are
11 that the provider takes on the risk not only for the
12 medical aspects of care but the financial aspects of
13 health care. And what I was trying to do in this
14 article was to point out that there are factors in
15 the costs of health care that are beyond the control
16 of health care providers. And that the implication
17 being that they are about to assume risks of which
18 they might not have very much control.
19 Q. Okay. And is it fair to say that basically
20 you looked at a fairly wide variety of variables
21 with regard to hospitalizations using, in this case,
22 major bowel surgery as the example and trying to
23 determine the extent to which those variables
24 predicted length of stay and cost?

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1 A. Yes.
2 Q. Okay. Go to the results page on page 445.
3 One of the -- two, I guess, of the analyses that you
4 did show that age and gender were not predictors of
5 either total charges or length of stay. Is that a
6 fair statement?
7 A. Yes.
8 Q. Tell me what you found with respect to the
9 variables in Admission status. First of all, let me
10 back up a step. Tell me what Admission status, how
11 you define that in this paper.
12 A. Admission status really categorized patients
13 as either being those scheduled for elective
14 admission versus those that were admitted
15 emergently.
16 Q. Admitted sort of involuntarily through the
17 emergency room?
18 A. Or were emergently transferred from a nursing
19 home or presented to their doctor's office and they
20 were emergently ill in their doctor's office. In
21 other words, the illness and not the location
22 defined the emergence.
23 Q. Okay. So the two categories of Admission
24 status, then, in your paper would be elective

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1 admissions and emergent or emergency admissions?
2 A. Yes.
3 Q. Tell me what you found when you looked at that
4 variable with respect to costs and length of stay?
5 A. I believe they were -- costs were
6 significantly higher and length of stay was
7 significantly longer for emergent admissions.
8 Q. Than for elective admissions?
9 A. Yes.
10 Q. Did you in this paper attempt to determine why
11 that was?
12 A. Not in this paper, no.
13 Q. Do you have opinions as to why that is,
14 outside of the boundaries of this paper?
15 A. Well, I have some opinions but I don't have
16 any data to support the opinions. I mean, and it's
17 -- the opinion is that it's not -- I don't think
18 it's easily classifiable into one single statement.
19 I think that they're multifactorial bases of why
20 emergent admissions are more costly both in terms of
21 dollars and days.
22 Q. Okay. But one explanation, presumably, would
23 be that people who come in on an emergency basis are
24 apt to be sicker than people who come in on an

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1 elective basis; right?
2 A. That's one possible explanation, yes.
3 Q. What are some of the others that you have
4 considered, understanding, of course, that you
5 really haven't done the data backup?
6 A. Well, yes. Another possible one is that
7 because the patient is coming in emergently, you
8 don't have the opportunity to coordinate and plan
9 for care and, therefore, some of that planning,
10 coordination, has to take place while the patient is
11 in the hospital.
12 Q. Okay.
13 A. Those two I think are the most -- probably I
14 guess would be that they would account for the
15 lion's share of . . .
16 Q. The discrepancy in cost and stay?
17 A. . . . the discrepancy, yes.
18 Q. Moving down to the second category of the
19 situation you considered Admission service. First
20 of all, tell us what Admission service is?
21 A. Well, there are a number of services within
22 the hospital. Some are surgical, some are medical.
23 And, you know, depending upon how many different
24 specialties you have, you can break it down, you can

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1 get numbers that run to tens or even there's twenty
2 different specialties.
3 To simplify it I simply categorized all
4 the surgical specialties as surgery. Most of them
5 turned out to be general surgery. And most of the
6 medical categories as medicine. Most of them turned
7 out to be internal medicine. And just compared
8 dollars and lengths of stay on that basis.
9 Q. Depending on whose service they came in
10 through?
11 A. Yes.
12 Q. And what did you find there?
13 A. That charges and length of stay were again
14 significantly higher for admission to the medical
15 services than they were to the surgical services.
16 Q. Okay. And tell me why, in your opinion, or
17 some of the reasons that that might have been the
18 case?
19 A. Well, one explanation is that the way the DRGs
20 are classified is . . .
21 Q. You have to -- let's define DRG right here.
22 A. Okay. DRGs are diagnosis-related groups. And
23 they are a component of the Medicare prospective
24 payment system.

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1 Q. Okay.
2 A. And they were initially designed as a hospital
3 management tool but became adopted as a
4 reimbursement measure when Medicare went to
5 prospective payment.
6 Q. Okay.
7 A. One reason may relate to the thing that you
8 suggested, that the patients were sicker when they
9 presented emergently in that, for instance, a
10 patient may have presented with congestive heart
11 failure, was admitted to the medical service for the
12 treatment of their congestive heart failure. During
13 that treatment and evaluation, they were discovered
14 that anemia was the cause and then when they looked
15 for the cause of the anemia they were found to have
16 a cancer of the colon.
17 And so it was the cancer of the colon
18 that eventually had to be resected that wound up
19 classifying the case in this particular DRG when, in
20 fact, the patient really had two serious illnesses.
21 And the point being is that the DRGs do not
22 sufficiently classify for the severity of the
23 disease and there are other factors involved.
24 Q. Okay.

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1 A. That's one explanation. Another explanation
2 is simply all other things being equal, there are
3 communication delays in terms of saying, all right,
4 now I have this patient on my service that needs a
5 surgeon so I'll call the surgeon and the surgeon
6 will say I'll come by tomorrow and there are
7 communication delays.
8 Q. Okay. And so both length of stay and costs
9 were greater if admission occurred on the medical
10 service rather than on the surgical service?
11 A. Correct.
12 Q. Now, in addition to that, you have a category
13 entitled Previous admissions. What was that
14 category?
15 A. We identified the number of times the patient
16 had previously been admitted to the hospital. And
17 that was a proxy for perhaps the individual's
18 general state of health.
19 Q. Okay.
20 A. And I think there was a low of one and a high
21 of seven. And it turns out when we used it on a
22 numeric basis, that way there were just too few
23 groups in each category to have a meaningful
24 analysis so we just eyeballed the data and then

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1 arbitrarily made some cutoff. I forget whether it
2 was three or four.
3 Q. I think maybe down there in the middle of the
4 right-hand column of 445 . . .
5 A. But then you -- yes.
6 Q. . . . there's three or less for few and many
7 was four or more.
8 A. Right. So that was somewhat arbitrary. But
9 eyeballing the data, it looked like there was a
10 significant cutoff there and so classified one group
11 as few and one group as many and found that the
12 patients who had many previous admissions had higher
13 charges and length of stay.
14 Q. Who had many admissions?
15 A. Yes.
16 Q. And again, you indicated that that might at
17 least in part have been reflective of -- as
18 surrogate for, proxy for poor health status and more
19 serious problems?
20 A. And there may have been other health issues
21 that had to be addressed in addition to the one that
22 wound up classifying the patient into DRG 148 or
23 149.
24 Q. Which would be the bowel surgery DRG?

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1 A. Yes.
2 Q. And you mention here on page 445 a statement
3 "The highly significant differences between these
4 categories reflect the compression scheme." What
5 does that mean?
6 A. Well, we compressed each of those individual
7 numbers of admissions into fewer or many and we
8 looked at the data and said well, you know, where it
9 is -- what seems to be a natural cutoff and the
10 natural cutoff was that the ones with few, between
11 three and four, you know, at three the costs seemed
12 to jump up. So we said okay, we'll lump all the
13 three's together and lump all the four's together --
14 four's or higher together, and that itself becomes a
15 self-fulfilling prophecy.
16 Q. But it was, nevertheless, a considerable
17 statistically significant difference between few and
18 many?
19 A. Yes.
20 Q. Then you examined a group called or a category
21 called Payer types. What were the categories of
22 Payer type?
23 A. The categories were, there were four
24 categories. One was an insurance category where

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1 people, at the time that the data was collected,
2 would have had typical fee-for-service insurance.
3 Medicare were those individuals who were covered by
4 Medicare. Public assistance I believe included
5 Medicaid. It may have included some other
6 categories. It's probably defined in the public
7 assistance is Medicaid or county assistance. And
8 the self-pay group is the group that had no
9 third-party coverage.
10 Q. Okay. And what did you find there with
11 respect to stratifying or analyzing on the payer
12 type?
13 A. Well, that there were significant differences
14 between the groups, that the insurance category had
15 the lowest charges and shortest length of stay. The
16 self-pay group had the highest charges and the
17 highest length of stay. And the Medicare and public
18 assistance groups were intermediate.
19 Q. And that's with respect to both length of stay
20 and charges?
21 A. Yes.
22 Q. Tell me why that varied, if you have any
23 thoughts on the subject?
24 A. Well, it's not -- it's not entirely clear

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1 because when you do a single-item analysis such as
2 this, these categories, for instance, can reflect
3 age in that the Medicare population are going to be
4 almost solely limited to those over 65.
5 Q. Right.
6 A. The insurance category is going to be usually
7 people who are employed or probably in a higher
8 socioeconomic status. So that they are really
9 probably proxies for at least both age and
10 socioeconomic status if not some other factors as
11 well.
12 Q. And you believe that both the age and the
13 socioeconomic status of these individuals, at least
14 with respect to this paper, are predictors of the
15 length of stay and the cost of the hospitalization?
16 A. On that I'll have to -- I'm not sure what we
17 came up with.
18 Q. Because I believe you said age . . .
19 A. Age.
20 Q. . . . you said was not entirely predictive.
21 That would be over on page 445.
22 A. Right. It's probably -- yes, age was not a
23 factor but maybe I'm -- on 447, Table V deals with
24 factors that were responsible when you did a

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1 multivariate analysis and essentially controlled
2 for . . .
3 Q. Each of the others?
4 A. . . . each of the others.
5 Q. Yes. I'm going to talk to you about that.
6 I'm not going to skip that. Why don't we go on
7 through the various descriptors. We talked about
8 payer types. You also looked at an issue called
9 Service type. Could you describe what that was?
10 A. At the time the data was collected, there were
11 -- the private services were in which the
12 individual was admitted under the care of a
13 practicing attending. The residents participated
14 but did not have primary responsibility. Whereas,
15 the staff patients were admitted with more resident
16 responsibility in attending supervision.
17 Q. Okay.
18 A. And that -- well, I'll stop.
19 Q. Okay. Does the service type reflect anything
20 about the sector from which the patient would come?
21 A. A staff patient was more likely to be somebody
22 who was not attached to a physician. Therefore, it
23 would come in through the emergency room and could
24 be related to their socioeconomic status.

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1 Q. Okay. And what did you find there?
2 A. That there was statistically significant lower
3 charges for the private category. The length of
4 stay was also lower for the private category but it
5 did not reach statistical significance.
6 Q. Okay. Diagnosis, you described six diagnoses,
7 I guess, dealing with major bowel surgery. I take
8 it those are the primary six categories of bowel
9 surgery that you do?
10 A. Well, they are -- they were, again,
11 arbitrarily created categories in that the DRG
12 classifies patients on whether or not they have a
13 colon resection. But there are many indications for
14 a colon resection. In some the patient may or may
15 not be systemically ill. And so some of these such
16 as neoplasm are patients with cancer, others had had
17 obstructions, others there's diverticulitis which is
18 an inflammatory process. And it was that
19 classification was intended to examine whether the
20 disease process, independent of the type of surgery
21 that you performed, somehow affected charges and
22 length of stay.
23 Q. Okay. And what did you find there?
24 A. Well, again, the differences among the groups

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1 were significant that it looks like patients with --
2 that came in with stoma closure, that means that
3 they had had a previous colon resection for some
4 problem and now were simply being hooked back
5 together again, had the lowest charges and lowest
6 length of stay. Patients with neoplasm were the
7 next lowest in both those categories, and then the
8 others are progressively higher.
9 Q. Okay. With the bowel obstruction I guess
10 being the highest cost and looks like pretty close
11 to the highest number of days spent in the hospital;
12 right?
13 A. Yes.
14 Q. Okay. Tell me about the category entitled
15 Reoperation. What was -- well, I tell you what, I'm
16 reading through the article here and the next one I
17 guess would be reoperation; right? Tell me what
18 that means.
19 A. Well, that was really as a proxy for some
20 complication. As a complication of a primary
21 procedure and, furthermore, a complication severe
22 enough to require a second operation. And what that
23 showed is that patients who required a second
24 operation had much higher costs, almost triple, and

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1 much longer lengths of stay than people who did
2 not. It's hardly rocket science.
3 Q. Okay. And in fact, that is a spectacular
4 difference there, right, when you look at the total
5 charges, it was something like 46,000 on the average
6 versus 16,000 on the average for not a second
7 operation?
8 MR. MIKHAIL: Object to the form, the
9 use of the word "spectacular."
10 THE WITNESS: I'm not sure it was a
11 question.
12 MR. McELVEEN: I'll withdraw the
13 question or the statement.
14 Q. The next category you have is Discharge
15 status. Tell me what, I believe we can all agree
16 with what Discharge Status - Died meant but what are
17 the other two categories and how did you look at
18 those?
19 A. Well, the other two categories are patients
20 who discharged home were sufficiently well that they
21 could go back to independent living.
22 Q. Okay.
23 A. Whereas, those in the skilled nursing facility
24 were those who either probably had come from a

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1 skilled nursing facility to begin with or were
2 sufficiently not well enough recovered that they
3 could live independently.
4 Q. Okay. And what did you find? And then, of
5 course, the died was the third category of Discharge
6 status.
7 A. Yes.
8 Q. What did you find there?
9 A. Well, again, there was statistically
10 significant differences and that the patients who
11 went home had the lowest charges and lowest lengths
12 of stay. Those who went to a skilled nursing
13 facility were intermediate charges but usually had a
14 long length of stay. And the people who died had
15 the greatest charges.
16 Q. Okay. And I guess your last category there in
17 Table III on page 446 was actually the DRG. What
18 did you do with respect to that? I guess you used
19 the two DRGs that deal with major bowel surgery, did
20 you?
21 A. Yes. And those two DRGs are supposed to
22 incorporate a severity measure with 148 being more
23 severe than 149. And so we examined our actual
24 experience with those and compared those to the

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1 relative weights and the relative reimbursements
2 that are offered, and I think our finding was that
3 the -- our experience with DRG 148 were that the
4 charges and length of stay were much greater than
5 the actual reimbursement or the relative weight of
6 the two DRGs allowed.
7 Q. For the 148 DRG?
8 A. For the 148.
9 Q. Okay. Now, obviously as we've been talking
10 here, it's clear that a person could fall into more
11 than one of these categories. They could be an
12 elective admission on a private doctor with one of
13 those diagnoses and have it be a reoperation and so
14 forth. So you've looked at each of those
15 individually. Then did you look at them controlling
16 for each of the others?
17 A. Yes.
18 Q. And what did you conclude then based on the
19 multivariate analyses?
20 A. On the multivariate analysis, and I believe
21 those results are shown in Table V . . .
22 Q. Okay.
23 A. . . . and it's probably -- let me refer to the
24 text here for a second.

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1 Q. Surely.
2 A. Okay. I think it's stated in the text on that
3 right-hand column on page 447, factors which were
4 not significant by univariate analysis remained not
5 significant. That the service type such as private
6 versus staff or certain payer types and certain
7 types of diagnoses also were not significant in
8 terms of meeting the entry criteria.
9 Q. Okay.
10 A. But that admission service, previous
11 admissions, admission status, the insurance payer
12 type, the discharge status and reoperation and the
13 diagnosis of diverticulitis all did meet the entry
14 criteria.
15 Q. Okay. The entry criteria meaning that they
16 remained significant even after control for the
17 other factors?
18 A. Correct.
19 Q. And so that is, as you say, reflected in the
20 Table V up there on page 447?
21 A. Yes.
22 Q. Now, I notice, of course, that you did this
23 study on major bowel surgery in the Medicare
24 population. Would you expect, based on your

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1 experience, for similar findings to occur if you
2 were to look at variables with respect to the
3 treatment of surgery for peripheral vascular
4 disease?
5 MR. MIKHAIL: I object to the form but
6 you can try to answer that.
7 Q. If you understand my question.
8 A. What . . .
9 MR. MIKHAIL: Dr. Rhodes may understand
10 the question. I didn't. Do you understand the
11 question?
12 A. I believe what he's asking is if we applied
13 the same variables to the DRGs for peripheral
14 vascular disease, would we get similar differences.
15 Is that what you're asking?
16 Q. Yes.
17 A. Okay. Yes, I believe we would. And I believe
18 actually some people who have done similar types of
19 studies have seen that.
20 Q. Okay. Let me just go down sort of the list
21 there on Table III. Based on your own experience,
22 the peripheral vascular disease patient, and let me
23 categorize this now with -- we've talked about two
24 sort of general categories of peripheral vascular

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1 disease treatment, and there's really three that
2 you've mentioned. One is arterial bypass surgery,
3 two is amputation, three is repair of abdominal
4 aortic aneurysms, and I guess four would be bypass
5 surgery and the cerebrovasculature. Is it fair to
6 say that with respect to all of those four
7 categories of surgery that the admit status could be
8 either emergent or elective?
9 A. Yes.
10 Q. And is it fair to say that for all four of
11 those types of surgery, the service of admission
12 could be either medicine or surgery?
13 A. It's fair to say it's probably not accurate in
14 the sense that the peripheral vascular problems are
15 often so clearly evident as surgical to begin with
16 that I don't think you would have but a minority of
17 patients admitted to medicine.
18 Q. Okay. Well, when you say "a minority of
19 patients . . ."
20 A. Small minority.
21 Q. Okay. Do you have any percentages that you
22 could assign to that?
23 A. I would say it would be less than ten percent.
24 Q. Okay. Most would be admitted on the surgical

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1 service . . .
2 A. Yes.
3 Q. . . . if they were symptomatic enough to need
4 the surgery. Would there be people who might come
5 in on a medicine service who would be looked at and
6 would be determined to need surgery whether they
7 thought they needed it or not?
8 A. I'm not sure I understand that.
9 Q. There would be, I take it, individuals with
10 any of those four conditions who would fall on both
11 sides of the previous admission category; correct?
12 A. Yes.
13 Q. There would be certainly individuals who would
14 fall in all four categories of the payer type?
15 A. Yes.
16 Q. There would be individuals who would fall into
17 both categories of the service type, private or
18 staff?
19 A. I think care is evolved so that those
20 distinctions are more arbitrary now and so it might
21 be harder to categorize.
22 Q. But as those terms were defined in your '95
23 paper, there would be people on both sides?
24 A. There would be people on both sides.

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1 Q. Okay. The diagnosis category, of course,
2 wouldn't include those diagnoses of the bowel
3 disease that we talked about but are there different
4 categories other than the four I have mentioned that
5 reflect diagnosis codes for peripheral vascular
6 disease, surgeries?
7 A. Well, there are a number of diagnose -- there
8 are a number of different categories of DRGs for
9 vascular surgeries, but again, they relate to
10 usually the site of operation and not necessarily
11 the underlying severity.
12 Q. Let me take you away from DRGs for a moment
13 and ask you if we were dealing solely with the
14 Medicaid population in Mississippi, the payer type
15 obviously would disappear because we're just dealing
16 with the one payer type there. But you would still
17 have admission status, admission service, previous
18 admissions, service type that would be variables;
19 right?
20 A. Well, no, because the service type is often a
21 function of the payer type so that given a single
22 payer type, there -- we could probably say there's
23 going to be a single service type.
24 Q. Okay. And that would be staff service?

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1 A. Not necessarily. Not necessarily. The way
2 the surgical service is organized at the University
3 of Mississippi Medical Center is that the attending
4 supervision is very close. So that I in many ways
5 would actually categorize it as it being private.
6 Q. Okay. So a Medicaid patient at the University
7 of Mississippi Medical Center is going to be
8 admitted to Mississippi Medical Center by a
9 referring physician; is that what you're saying?
10 A. No. No. But I'm saying that the supervision
11 in which the care is undertaken is going to be as
12 close as one might have expected if they had been
13 referred by a referring physician.
14 Q. Okay. What about hospitals other than the
15 University of Mississippi Medical Center in
16 Mississippi? Would Medicaid patients be admitted
17 both on the private and on the staff side of other
18 hospitals?
19 A. Well . . .
20 Q. Based on your knowledge, now.
21 A. Yes, based on my knowledge. Actually, there
22 are, in and around the Jackson area, there are
23 actually few hospitals that admitted significant
24 numbers of Medicaid patients. From their

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1 perspective, Medicaid patients were staff patients,
2 not private patients. And it is actually part of
3 the enabling legislation at the University of
4 Mississippi Medical Center that at least 50 percent
5 of the patients in the University Hospitals there be
6 indigent. This was before Medicare and Medicaid.
7 And, of course, the institution of
8 Medicaid changed that and made some people who
9 otherwise would have been considered medically
10 indigent eligible for some coverage but the
11 regulations -- there's not really regulations but
12 the statement still applies. And if you look at the
13 pair mix at University Hospital, the percentage of
14 self-pay patients and the percentage of Medicaid
15 patients still comprises over 50 percent of the
16 patient population. And I believe that's a
17 significantly different patient mix than any other
18 hospital in the state of Mississippi.
19 Q. But with respect to Greenwood or Greenville or
20 Pascagoula, you can't speak to those regional
21 medical centers there?
22 A. I don't know what -- no, I have no direct
23 knowledge of what their patient mix is.
24 Q. Okay. Getting back to the diagnosis codes for

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1 peripheral vascular disease, I wanted you to direct
2 your attention exclusively to the Medicaid
3 population, and you talked about DRGs for diagnosis
4 for these bowel conditions. Is there a situation in
5 Mississippi in which there is a similar
6 classification of diagnostic codes comparable to the
7 DRGs for Mississippi Medicaid?
8 A. I'm not aware that there is. I mean, I have
9 -- let me elaborate on that. I have talked with
10 the people in the Medicaid office about doing
11 studies and doing similar types of studies and my
12 knowledge, based on their response, is that if there
13 is, it's probably based on DRGs but even they are
14 not aware of it.
15 Q. Okay. When you say "doing similar types of
16 studies," are you talking about studies that look
17 instead of at DRGs and this type of situation which
18 is Exhibit 4, looking at Mississippi Medicaid and
19 the type of study that's Exhibit 4?
20 A. Well, I think what you're driving at is to
21 take the Medicaid population and by then breaking
22 them down to DRGs, which by themselves are a
23 severity, somewhat of a severity measure, try and
24 identify the costs. Those costs would not

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necessarily have been divided between hospital costs versus physician costs. They may not identify individual facilities. And, I mean, it would require quite a complex analysis probably to be of any value to them. And as a matter of fact, I'm not aware of too many places elsewhere in the country, let alone in Mississippi, that have done that.

Q. But your testimony is that Mississippi has not, in fact, done that?

A. Correct.

Q. Okay. And getting back to the table, then, I guess -- well, let me, before I leave diagnosis category, so is what you're saying, then, that if you were looking at the same type of analysis with respect to Medicaid patients and charges and length of stay with respect to peripheral vascular disease, under the diagnosis categories, you would have all the various diagnosis categories that are coded for peripheral vascular disease of one sort or another?

A. You might.

Q. How many, roughly speaking, different categories are there for PVD?

A. Well, it -- there can almost be an infinite number of categories, depending upon which

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1 categorization scheme you want to use. The billing
2 or reimbursement schemes use a so-called CPT
3 categorization which often break down each of the
4 categories, the four categories that you mentioned
5 before, into maybe ten or more subcategories.
6 There's another classification scheme called the
7 ICDM which is primarily used for hospitals. There's
8 another diagnosis coding system which also has many
9 subcategories within the larger categories. And so
10 the categories are not simple and clearcut and there
11 are levels of complexities within each of those.
12 Q. You mentioned a little earlier that you
13 thought some studies may have been done with respect
14 to categorization of peripheral vascular disease
15 costs that were sort of like this paper. Is that
16 your testimony?
17 A. Yes.
18 Q. Can you direct me to any of those?
19 A. Yes. It will be in the journal Surgery.
20 Q. Right.
21 A. And it will be in probably September 1996, and
22 it will be an article by Kalman, K-a-l-m-a-n, and
23 it's a study out of Canada, and it deals with
24 abdominal aortic aneurysms.

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1 Q. Okay. As simply one of the categories of --
2 does it . . .
3 A. No, it deals strictly with patients with
4 aneurysms.
5 Q. But does it look at these various variables?
6 A. It looks at similar types of variables.
7 Q. Okay. Does it conclude that there are
8 statistically significant differences based on
9 various of these variables, even exclusively for the
10 treatment of abdominal aortic aneurysms?
11 A. Yes, it concludes that patients in lower
12 socioeconomic classes have higher costs and longer
13 lengths of stay.
14 Q. Getting, again, back to the Table III
15 analyses, and again talking to you about public
16 assistance or Medicaid, let's just talk specifically
17 about Medicaid patients, are there Medicaid patients
18 who would be in the hospital for reoperations on
19 peripheral vascular disease?
20 A. Probably.
21 Q. Are there patients who would fall into each of
22 those three discharge statuses who would be on
23 Medicaid?
24 A. Yes.

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1 Q. Explain to me, if you would, a statement that
2 you make on the bottom of the left-hand column of
3 page 449, "The inability of this DRG pair --" and I
4 take it that you mean 148 and 149 . . .
5 A. Yes.
6 Q. ". . . to adequately account for patient
7 factors is reflected in the fact that DRG 148/149
8 alone accounted for only 4.2 percent of the variance
9 in charges and 3.8 percent of the variance in length
10 of stay." What does that mean exactly?
11 A. If you were to look at the charges and length
12 of stay for every patient admitted to the hospital
13 with every possible diagnosis, you would have
14 variance among them in terms of -- there would be
15 differences. The person who would be admitted for a
16 one-day hernia repair would have one day of stay and
17 relatively low charges. And somebody admitted for a
18 very complex operation would be in there with a much
19 longer length of stay and charges.
20 When one is taking risks for health
21 care costs, one wants some predictability in what
22 those costs are going to be. And so by classifying
23 these things, you can explain the variance. And
24 what this says is that those two DRGs really only

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1 accounted for about four percent plus or minus a
2 little bit for both charges and length of stay over
3 actually what no -- not -- really having no
4 classification at all. And that probably, if you
5 lump them all together, even if you lumped all the
6 colon cases together into one, there's only one DRG
7 for colon cases.
8 Q. Right.
9 A. Then you decide that doesn't create enough, it
10 will create a second category which we'll call DRG
11 149. By creating that category, that second
12 category, you've only improved your ability to
13 predict by a slight amount.
14 Q. Right. And then when you add your other
15 factors in there that we've talked about for the
16 last few minutes, you actually increase the
17 explainable variance up to 52 percent of the
18 variation; right?
19 A. That's correct.
20 Q. But even at that, there's 48 percent of the
21 variation that's not accounted for?
22 A. Correct.
23 Q. And do you know what it is that accounts for
24 the other 48 percent of the variance?

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1 A. Well, the point of this article was to say
2 that there -- that there was still a large
3 percentage of the variance that was unexplained and
4 that some of it may be related to hospital factors,
5 some of it might be related to patient factors, and
6 some of it might be related to physician factors.
7 And by using some of the categories here like
8 emergent versus elective and a whole bunch of other
9 things, it was to get a handle on how much those
10 identifiable patient factors contributed.
11 Q. Okay. Finally with respect to this article,
12 let me take you to the last page of the article and
13 start at the very bottom of page 449. I want to
14 read you this sentence. "Many of the factors do not
15 seem controllable by health care providers because
16 they are more related to patient socioeconomic
17 factors." And then you say "The impact of such
18 socioeconomic factors will vary among hospitals and
19 among DRGs within a given hospital." Do you mean to
20 say by that that this description of what you did
21 really explains this only for the hospital you were
22 looking at?
23 A. To a certain extent, yes. And there is other
24 data in the literature that looks at similar types

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1 of factors for other DRGs. And while my testimony
2 was that I thought that similar types of factors
3 might apply to vascular disease, that concept can't
4 be universally applied to all other DRGs.
5 Q. Okay. Now . . .
6 A. If we're going to leave that, can I make one
7 additional statement?
8 Q. Sure.
9 A. Because it may play a factor in here. I wrote
10 this while I was at the University of Mississippi
11 Medical Center but I have to say that the data does
12 not come from patients in Mississippi. This is data
13 that I collected while I was associated with another
14 facility.
15 Q. Let me ask this question sort of based on what
16 you just said: Do you believe that if you did do a
17 study involving the University of Mississippi that
18 you would have similar findings?
19 MR. MIKHAIL: Object to the form but
20 you can try to answer it.
21 A. Well, I can't say. I think that would be the
22 purpose of doing the study and I think it relates to
23 the previous discussion, the statement about the
24 impact of socioeconomic factors will vary among

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1 hospitals.
2 Q. I'm sorry, say the last part of your answer
3 again?
4 A. Well, you were quoting the line on page 450
5 where I said "The impact of such socioeconomic
6 factors will vary among hospitals." And just
7 because it worked at this particular hospital
8 doesn't mean the same factors would be as important
9 or would have the same priority of importance at the
10 University of Mississippi Medical Center.
11 Q. But until such a study is done using
12 Mississippi patients you can't tell what the various
13 impacts would be; right?
14 A. That's correct.
15 Q. Turn with me for just a moment to Exhibit 5
16 which is entitled Factors Affecting Length of
17 Hospital Stay for Femoropopliteal Bypass. First of
18 all, tell me what femoropopliteal bypass is?
19 A. Femoropopliteal bypass describes a --
20 actually, it could encompass an entire category of
21 operations which are designed to place a bypass
22 graft from about the level of the groin to lower
23 down on the leg. But that can encompass operations
24 that are -- cuts the popliteal artery, which is the

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1 distal anastomosis, extends above and below the
2 knee; sometimes it's operations to above the knee;
3 sometimes it's to below the knee, and those
4 differences are related to significant differences
5 in complexity and success.
6 Q. Okay. And I'm going to really talk to you
7 about some of the conclusions in the abstract but to
8 the extent that you want to make reference to the
9 body of the article itself, feel free to do that.
10 I'm not just trying to limit you to the abstract.
11 First of all, you did this work in Cleveland; right?
12 A. Correct.
13 Q. And this article was in the New England
14 Journal of Medicine . . .
15 A. Yes.
16 Q. . . . in 1986. First of all, you looked at
17 two DRGs which, again, are Medicare diagnosis-
18 related groups for major reconstructive vascular
19 surgery, DRG 110 and 111. Now, are both of those
20 DRGs related to peripheral vascular surgical
21 procedures or . . .
22 A. Yes.
23 Q. What's the distinction between 110 and 111?
24 A. Well, they are -- they are both related to

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1 femoropopliteal bypass and as was with DRGs 148 and
2 149, they're paired to include the same procedures
3 except 110 is supposed to include the categories
4 where the patients may be more severely ill.
5 Q. Okay. Again sort of like that one DRG 148 in
6 the bowel surgery sort of took into account a sort
7 of seriousness factor?
8 A. Yes.
9 Q. You found here that the mean length of stay
10 was related to the patient's age and that increased
11 at a rate of about one percent a year. Is another
12 way of saying that that the older the patient was
13 when the femoropopliteal bypass was done, the longer
14 they stayed in the hospital?
15 A. Yes.
16 Q. And then later on in the abstract you say the
17 site of distal anastomosis, a factor not considered
18 in establishing the criteria for these DRGs, was
19 also important. Tell me what the importance of the
20 site of the distal anastomosis was?
21 A. Well, the further you have to go down the leg
22 with your bypass graph, that probably reflects the
23 length and the severity of the occlusion. And as
24 you have to go further down the leg, you are dealing

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1 with arteries that are smaller and smaller and the
2 bypass is over a longer distance. So the technical
3 complexities and the success rate, the technical
4 complexities increase and the success rate decreases
5 the further down the leg you have to go.
6 And the point of this was, say, that
7 DRGs 110 and 111 did not include those as severity
8 measures. They used other severity measures. But
9 that a lot of the explanation of severity was really
10 related to the site of the distal anastomosis and
11 not the severity measures that had been assigned.
12 Q. The distal anastomosis being essentially the
13 point at which you plug in the vein at the bottom of
14 the leg?
15 A. Yes.
16 Q. Okay. You mention also that more distal
17 anastomoses were also associated with increased
18 rates of postoperative morbidity, reoperation and
19 mortality. What do you mean by postoperative
20 morbidity? Would that mainly be infection?
21 A. Infection, clotting of the graft, problems
22 with wound healing. The further you have to go down
23 the leg, the more likely the patient is to be
24 immobile for a period of time and therefore require

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1 greater rehabilitation.
2 Q. You then mentioned significant differences
3 were noted among the patients treated by different
4 surgeons. What was your finding there?
5 A. This data came from a database which was
6 contributed by a lot of surgeons throughout the
7 Cleveland area and when we -- when we analyzed the
8 data by specific surgeons and then took the average
9 of the patient age, whether the patient had previous
10 surgery, how frequently they had to do very distal
11 anastomoses and the rates of morbidity and
12 reoperation, they -- the differences among the
13 surgeons were statistically significant.
14 Q. Without naming names here, does that mean that
15 some surgeons were just better at this procedure
16 than other surgeons were?
17 A. No. What it means is that when you would
18 factor in some of these things among the surgeons,
19 it was clear that not everybody was doing the same
20 level of complexity of case. That some surgeons had
21 a significant percentage of their practice was
22 highly complex. Some surgeons were doing very
23 proximal anastomoses on young, particularly healthy,
24 as much as the circumstances might allow, patients.

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And that the data actually showed the opposite. And it pointed out one of the fallacies of the classification scheme which Medicare fell into anyway was to say that the surgeons who were more highly trained or had certificates in vascular surgery from the American Board of Surgery were dealing with the more complex cases. And if one didn't factor in these things and just look at morbidity, mortality and related phenomena, that the surgeons with the larger credentials had worse statistics. Those statistics were not necessarily reflective of their ability. Those statistics reflected their patients were more severe.

Q. And the surgery was more complex, in other words, as to those?

A. Yes.

Q. You also mentioned significant differences were noted among the patients with respect to their age. Is that another reference as to the mean length of stay was found to be related to the patient's age or was this a different point?

A. We know that there are, and there's another study in my CV that deals with the Cleveland Vascular Society categorizing patients as less than

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1 75 and older than 75 and the morbidity and mortality
2 of age there, and I believe that there was
3 significant differences when looking at age there as
4 a single factor, not considering any of the other
5 severity factors.
6 Q. Okay. Older people tend to do less well?
7 A. Correct.
8 Q. Another significant difference was noted among
9 patients, the percentage of whom had previous
10 ipsilateral surgery. What does that mean?
11 A. That means that if the patient had had a
12 previous vascular operation, either in the immediate
13 past or in the remote past, to deal with the same
14 situation and then was referred to another surgeon
15 because the situation either had not been corrected
16 or had recurred, those patients would have been
17 classified as having a previous ipsilateral
18 procedure.
19 Q. On the same side?
20 A. That's what ipsilateral means, yes.
21 Q. And those people did what? Ended up staying
22 in the hospital longer if they had had it?
23 A. Yes.
24 Q. What about the frequency of tibial bypass as a

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1 significant difference? What does that mean?
2 A. Well, tibial bypass is probably the most
3 distal of all the anastomotic sites, and there the
4 vessels are much, much smaller because they are
5 already divided and the bypasses are much, much
6 longer. This could -- this could reflect the
7 severity of the occlusion to begin with or it could
8 reflect that the patient had had a previous
9 procedure to a more proximal site and that that
10 previous procedure had now failed and they're now
11 attempting a second procedure to get around the area
12 that had occluded after the first procedure.
13 Q. Later in your paper in the next to the last
14 paragraph on page 154 you say "More distal
15 anastomoses were associated with other complicating
16 factors." What other complicating factors were
17 associated with distal anastomoses?
18 A. Well, as it states in the next sentence, more
19 than 40 percent of these patients had undergone
20 previous ipsilateral procedures, so that in addition
21 to the technical difficulties of operating on a
22 smaller artery, you're operating on a patient who's
23 already demonstrated a propensity to clot their
24 bypasses and you're reoperating through areas that

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1 are previously operated on. That increases the
2 propensity to infection and a number of issues.
3 Q. Okay. Now, subsequent to that article in The
4 New England Journal of Medicine, a letter was
5 received by the New England Journal, which is
6 Exhibit 6. And that is a letter in response to this
7 article, to which you replied. Do you recall that?
8 A. Yes.
9 Q. First of all, let me ask you this: It talks
10 about the length of stay for both DRGs 110 and 111
11 and then it talks about something called the Will
12 Rogers phenomenon. What is the Will Rogers
13 phenomenon?
14 MR. MIKHAIL: Where are you looking?
15 Q. In the middle of their letter. "The most
16 substantial error, however."
17 MR. MIKHAIL: Third paragraph -- fourth
18 paragraph?
19 Q. Yes. And then about the middle of that
20 paragraph it says "This invalidates the data on
21 length of stay for both DRGs; it may well have led
22 to the Will Rogers phenomenon."
23 A. Okay. Well, they give a reference there,
24 their reference two probably describes it in

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1 detail. But what I think they're talking about is
2 if you have two categories, 110 and 111, and all the
3 severe patients are in 110 and the not severe
4 patients are in 111, but among the severe patients
5 in 110 there are various grades of severity, that if
6 you transfer some of those less severe patients from
7 110 to 111, those patients will have, on average,
8 longer lengths of stay than the patients already in
9 111 and increase their lengths of stay. And by
10 subtracting them from the group of patients in 110
11 that even have longer lengths of stay, then the
12 averages of those patients will also go up.
13 Q. Why is it called the Will Rogers phenomenon?
14 A. I don't know why it's called the Will Rogers
15 phenomenon but I think that's what they're referring
16 to.
17 Q. Okay. Now, you did not look in this study at
18 costs, you just looked at lengths of stay?
19 A. That's right. We didn't have costs in here.
20 Q. And I take it the paper that you subsequently
21 prepared that's in the 1995 issue of Surgery is at
22 least in part sort of taking off from some of the
23 issues you looked at in this New England Journal of
24 Medicine; right?

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1 A. Well, it reflects my ongoing interest in the
2 area of costs in general.
3 Q. Okay. And one of the comments that's made by
4 the two doctors who replied to your article or who
5 wrote the letter to the editor is, one of their
6 statements toward the very bottom of their letter is
7 "As the authors noted, there is only one code --
8 39.29 -- for femoropopliteal bypass, and it does not
9 allow distinction according to anastomotic site."
10 Do you know whether there is still just one code for
11 femoropopliteal bypass?
12 A. I haven't looked at it recently. I think --
13 it's not a single code, it's actually a pair of
14 codes and what Medicare has done over the years is
15 they have shifted the relative weights between the
16 codes to make them somewhat more equitable. All
17 those things may have taken place but I don't have
18 specifics on them.
19 MR. McELVEEN: All right.
20 (A discussion was held off the record.)
21 BY MR. McELVEEN:
22 Q. We have been talking generally, Doctor, about
23 a variety of factors that can affect cost and length
24 of hospital stay for a variety of surgical

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1 procedures. We've been talking about this in sort
2 of general terms. Is it correct, in your opinion,
3 that in order accurately to predict the costs and
4 length of stay for patients with peripheral vascular
5 disease and who were in for the various surgical
6 procedures that we've talked about you have to look
7 at most, if not all, of the issues that you looked
8 at in Exhibit 4, which is the major bowel surgery
9 paper?
10 A. I can't say that it's necessary to look at all
11 those factors because not all those factors will
12 affect every DRG. And they may -- may not apply to
13 DRGs 110 and 111. For instance -- or they may apply
14 in different ways.
15 Q. Okay.
16 A. And all these measures and these categories we
17 create are really proxies for other things.
18 Sometimes these proxies are because of our intuitive
19 reasoning, but that doesn't necessarily make them
20 correct.
21 Q. But let me direct your attention specifically
22 to the Medicaid population of Mississippi and
23 specifically to peripheral vascular disease
24 surgeries and ask you if it is your opinion that in

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1 order to ascertain what the likely actual Medicaid
2 costs are it wouldn't be necessary at least to look
3 at these issues to determine whether they are
4 important?
5 MR. MIKHAIL: J. C., I'm confused by
6 the form of that question. Could you rephrase it?
7 MR. McELVEEN: Let me ask the reporter
8 to read it back.
9 (The pending question was read by the
10 court reporter.)
11 A. No.
12 Q. Why not?
13 A. Because the costs are aggregate costs for this
14 entire group of patients. This analysis did not
15 change the costs. What it did was attribute the
16 costs to different factors. Okay. So one would not
17 have to do this analysis on the entire Medicaid
18 population because all you would be doing was
19 categorizing within the Medicaid population what
20 different factors might be important but the costs
21 to the aggregate Medicaid population would stay the
22 same.
23 Q. Okay. Let me ask a slightly different
24 question then and that is, once again, focusing on

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1 the Medicaid population in Mississippi, focusing on
2 peripheral vascular disease surgery, if one is
3 attempting to apportion the percentage of that cost
4 overall, aggregate cost, to a factor such as
5 cigarette smoking, would it not be necessary to
6 consider these variables as they relate to patients
7 in this population to determine if that aggregate
8 attributed percentage is right?
9 MR. MIKHAIL: I'm going to let
10 Dr. Rhodes answer it but I object as to the question
11 being outside the specialty area that Dr. Rhodes is
12 being proffered as an expert in.
13 MR. McELVEEN: Okay.
14 A. If you are looking or trying to attribute
15 costs to smoking, it would seem to me that you'd
16 have to examine that specifically. And that was not
17 one of the factors that we looked at in either this
18 study or the femoropopliteal study because of
19 methodologic difficulties in finding out whether on
20 a self-reported basis people are smoking or not.
21 And smoking might be, is likely to be, an important
22 factor on whether they actually come to the hospital
23 and require medical care. But whether their smoking
24 increased their cost beyond that or whether you can

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1 subfactor the cost beyond that is an interesting
2 question.
3 Now, there is data out there which
4 suggests that after a patient has had a major
5 vascular bypass, those who continue to smoke are
6 more likely to have their grafts clot than those who
7 stop smoking. And of course since these operations
8 are done for limb-threatening ischemia, when the
9 graft clots, you usually have to go back and
10 reoperate.
11 On the femoropopliteal people, we
12 didn't look at that as a specific study or as a
13 specific factor. But I am aware of at least one
14 study, and I believe there are others, that have
15 looked at this issue and found that smoking is
16 associated with a significantly higher risk of a
17 bypass graft clotting and then requiring a
18 subsequent bypass, that adding to the costs.
19 So that I think smoking is going to
20 play a role there. I think, and as I also mentioned
21 before, not being able to recall a patient in whom I
22 did a major bypass or amputation on that was either
23 not diabetic or was not smoking, it -- I'm not sure
24 how an analysis would affect that in the sense that

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the medical care costs are going to be, then you can argue in that category of patients significantly and almost specifically confined to the group who are smokers.

Q. Let me finally ask you a couple of questions about the last article that I have marked entitled Ambulatory surgery and the societal cost of surgery, and that is Exhibit 7. This was an editorial that you prepared I guess for Surgery magazine in 1994, November of 1994. First of all, let me ask you this question: You talk about a number of different surgical procedures in this editorial and none of them deal with peripheral vascular disease surgery?

A. That's correct.

Q. But I just want to use this article really as a springboard to ask you this question. To your knowledge and based on your whole career now from the time you were a resident until the present, has peripheral vascular surgery undergone any changes in the way things are done that tends to reduce the length of time or the cost of such surgery?

A. That, I'm not aware of any analysis directed to that specific point, and I think it would be a very difficult question to answer.

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1 Q. Are there any peripheral vascular surgery
2 procedures which now occur on an outpatient basis
3 that when you began practice were done only in
4 hospital, only, you know what I mean, only . . .
5 A. Not that I'm aware of.
6 Q. I better, for the record, just clear that up.
7 What I meant to say is that are not done with
8 patient hospitalization as opposed to in and out?
9 A. Right. Don't try this at home.
10 Q. Right.
11 MR. MIKHAIL: Or through a drive
12 through.
13 Q. One of the changes, I take it, that has taken
14 place during your practice in vascular surgery has
15 been the development of more and better types of
16 artificial graft devices; is that fair to say?
17 A. There has been the introduction of a variety
18 of types of graft devices. But actually, at least
19 over the course of my career, the available
20 materials have been really fairly constant. There
21 has not been as much variability, let's say, in the
22 period from 1975 to 1996 as there was, let's say,
23 from the period 1960 to 1973.
24 Q. Do you know for how far back the State of

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1 Mississippi seeks reimbursement for Medicaid costs
2 in this case?
3 A. No.
4 MR. McELVEEN: Why don't we take a
5 couple minutes.
6 MR. MIKHAIL: Okay.
7 (A recess was taken from 2:40 to
8 2:50 p.m.)
9 BY MR. McELVEEN:
10 Q. Dr. Rhodes, we talked a little bit before
11 earlier in the day about diabetes. And I'm just
12 wondering if you know whether diabetes is more
13 common in the black population than in the white
14 population?
15 A. I don't know.
16 Q. Okay. Do you know whether blacks tend toward
17 or have more hypertension than whites do?
18 A. I believe they do but I'm not certain.
19 Q. We talked about a number of risk factors for
20 the development of PVD and one of the articles which
21 you contributed to was an article entitled The Early
22 Results of Vascular Surgery in Patients 75 Years of
23 Age and Older. I'll give you a copy and counsel. I
24 just want to ask you about one issue and that is

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1 over under the discussion section on page 772 . . .
2 A. Do we have to enter this as an exhibit?
3 Q. No, I'm just asking you . . .
4 A. We're just talking.
5 Q. Right. Under the discussion section you
6 discuss an analysis of some 3,259 patient cases 75
7 years of age or older on whom this group, I guess,
8 or at least somebody in the group did vascular
9 surgery?
10 A. These are patients collected of all the
11 participating surgeons. I think there were 20-some
12 odd.
13 Q. Okay. Were these all peripheral vascular
14 surgery operations?
15 A. Yes.
16 Q. You mention at the bottom of page 772 on the
17 right-hand column toward the very bottom of the page
18 specifically detailed risk factors such as history
19 of a previous myocardial infarction, degree of
20 abnormality of an electrocardiogram, severity of
21 hypertension, medications used by the patients and a
22 history of a previous myocardial revascularization
23 are not available. Are all of those items risk
24 factors for peripheral vascular disease?

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1 A. No.
2 Q. Why did you call them risk factors here?
3 A. I think this -- they were not risk factors for
4 atherosclerosis as much as they were risk factors
5 affecting the early results.
6 Q. Oh, you mean the morbidity and mortality rates
7 following vascular surgery?
8 A. That's right. In other words, people had
9 previous myocardial infarction and abnormal
10 electrocardiograms, severe hypertension, was on a
11 lot of medications or had a previous coronary artery
12 bypass. That was a potential risk for morbidity and
13 mortality from their peripheral vascular surgery but
14 didn't cause peripheral vascular disease.
15 Q. I see what you're saying. Let me ask you
16 this, this is a paper that looks at patients over 75
17 years of age. Do you know whether any of these risk
18 factors for morbidity and mortality rates are risk
19 factors for those under 65 years of age?
20 A. Well, they're probably risk factors for
21 everybody. And one of the interesting -- I'm going
22 to get some water, if you don't mind.
23 Q. Okay. Yes, sir.
24 A. One of the interesting facets of this study

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1 was to ask the question are the elderly at increased
2 risk. And this addressed that question in a group
3 of patients in whom the individual surgeon had
4 already selected them out.
5 In other words, patients with highly
6 abnormal electrocardiograms or severe heart failure,
7 that sort of stuff, probably would not have been
8 operated on. And by virtue of their not being
9 operated on, they wouldn't have had a form filled
10 out that went into the Cleveland Vascular Registry.
11 So this analysis is on a group of patients who had
12 already been selected out as being low risk of
13 another group and yet the data shows that they were
14 high risk simply on the basis of age.
15 Your question was, well, what about
16 patients under 65 and, yes, there are probably
17 patients under 65 who had such severe cardiac
18 disease that they would have been turned down for
19 operation. And so they are probably not in the
20 under 75 group here. Those types of patients have
21 been probably -- who by the surgeon's judgment would
22 have thought to have been high operative risk in
23 both older than 75 and younger than 75, were
24 excluded and are not included in this analysis. In

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1 other words, they weren't operated on.
2 Q. Okay. Do you make a distinction between large
3 vessel peripheral vascular disease and small vessel
4 peripheral vascular disease?
5 A. How are you using the term small vessel
6 peripheral vascular?
7 Q. Less than two millimeters in diameter.
8 A. Yes.
9 Q. Okay. And what is that distinction? Do you
10 believe that they are distinctive separate vascular
11 disease entities?
12 A. Well, it's always been a curious fact about
13 the distribution of peripheral vascular disease. In
14 other words, if arteriosclerosis is a systemic
15 process, why does it seem to have a predominance for
16 the lower extremities? Why does it predominantly
17 affect the infrarenal aorta? Why the upper
18 extremity is relatively spared? Why do some
19 patients seem to get cerebrovascular disease with
20 minimal coronary artery disease and minimal
21 peripheral vascular disease? Other patients get
22 severe peripheral vascular disease and no coronary
23 artery disease or minimal carotid artery disease.
24 No one, to my knowledge, has ever

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1 understood the vagaries of the differences in
2 distribution. Okay. Now, why, you know, someone
3 has ischemia of their foot? Because they have
4 occlusions in the major big vessels in their abdomen
5 as compared to the same degree of ischemia in their
6 foot. But in this case, due to occlusions of the
7 smaller arteries in their calf, why they got one
8 distribution and not the other is not known.
9 Now, where the distinction comes in is
10 your ability to bypass or effectively deal with
11 those. Because the intra-abdominal vessels, given
12 the patient is relatively good risk for anesthesia,
13 we have good prosthetic grafts, good materials to
14 deal with those bypasses.
15 When you're dealing with the real small
16 vessels, then prosthetic grafts don't work. You
17 have to depend upon the availability of the
18 saphenous vein, if it is or is not available, many
19 cases it is not. And in many cases it's also
20 dependent upon the surgeon's ability.
21 So I guess there's a -- yes, there's a
22 difference between small vessel disease and large
23 vessel disease in terms of its surgical
24 implications. I would suspect there's also some

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1 difference in terms of its -- the pathologic
2 perspective except, to my knowledge, nobody knows
3 what that latter difference is due to.
4 MR. McELVEEN: Okay. I hate to ask you
5 to do this but would you read that answer back to
6 me.
7 (The immediately preceding answer was
8 read by the court reporter.)
9 Q. Is it your belief and your opinion based on
10 your review of literature and your training and
11 experience that these anomalies in the
12 atherosclerotic process that you've just described
13 occur in smokers as well as in nonsmokers?
14 A. The series that describe these patients
15 usually reports whether they're smokers or not.
16 Interestingly, all of them seem to have a high
17 preponderance of smokers, although they're not
18 necessarily exclusively smokers. So I would expect
19 that some of these patients can get these things who
20 are at least currently nonsmokers. Now, whether
21 they've smoked previously and are only recent
22 nonsmokers often isn't addressed.
23 Q. Right. But I guess my more general question
24 is has it been your experience in review of the

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1 literature that sometimes people who smoke get
2 carotid disease and no coronary disease, that type
3 of thing?
4 A. Yes. You can find specific exceptions in
5 every category, although a general rule of thumb is
6 that by the time the patient has peripheral --
7 symptoms of peripheral obstructive disease, they
8 probably already have significant coronary artery
9 disease. Whether or not that has yet become
10 symptomatic, we don't know. But the series show
11 that one of the greatest perioperative risks for
12 patients with undergoing peripheral vascular
13 operations are myocardial events.
14 Q. One of the issues that Dr. Blackburn and I
15 discussed in his deposition was the decline in a
16 variety of types of atherosclerotic disease over the
17 last 20 or 25 years. Are you of the opinion that
18 the incidence of atherosclerotic disease has gone
19 down over the last 25 years?
20 A. I have no basis for answering that because I
21 only see the patients that make it to the hospital
22 and the hospital is full.
23 Q. Okay. In your experience over time, has it
24 been your observation that peripheral vascular

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1 disease serious enough to lead to surgical
2 intervention has declined?
3 A. Again, I have no idea. The data that exists
4 among residency training programs, in other words,
5 programs where residents undergo their training and
6 they're required to submit their case experience as
7 part of the accreditation process have shown that
8 there's actually an increase in the number of
9 peripheral vascular operations that have taken place
10 over the last couple of years. But that group is
11 actually only a small segment of the total hospital
12 experience. And it could be that that particular
13 increase simply reflects a shift of cases from
14 smaller hospitals and not necessarily a change in
15 the prevalence or incidence of disease in the
16 general population.
17 Q. It might also reflect an aging of the
18 population, might it not?
19 A. It could, depending upon, you know, whether
20 you adjust for those things, yes.
21 Q. In your own medical practice at the University
22 of Mississippi Medical Center, did you have occasion
23 to work up peripheral vascular disease on patients
24 before you did surgeries?

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1 A. Yes.
2 Q. I mean work them up in the sense of taking
3 histories and performing physical examinations.
4 A. (Witness nods head.)
5 Q. You have to answer.
6 A. Yes.
7 Q. What history did you consider important in
8 determining whether a person had peripheral vascular
9 disease?
10 A. The history of the type of symptoms they were
11 having, whether it be claudication or rest pain, and
12 on examination whether they had gangrene of the
13 extremities, whether they had no pulses on palpable
14 examination or by using the Doppler.
15 Q. What inquiries did you make with respect to
16 potential risk factors for the development of their
17 disease or did you inquire?
18 A. Well, we routinely asked these patients
19 whether they smoke, what medications they were on.
20 Of course we would always check their blood pressure
21 to see, even if they're not previously known to be
22 hypertensive, if they might be hypertensive. And
23 those things were done routinely. And while a lot
24 of attention was immediately focused on the

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1 immediate peripheral vascular problem, they also did
2 receive counseling that our estimation of what their
3 risk factors were and how they could alter their
4 life-style to prevent recurrence of the problem. So
5 that I think they were all counseled as to what
6 their individual risk factors might be.
7 Q. And indeed, your advice or advice under your
8 direction would have been that they stop smoking if
9 they were smokers; correct?
10 A. That is correct. And when we would make
11 rounds on them, if we continued to smell smoke in
12 the room, we'd chide them on it. And we tried to do
13 as much as we could while they were under our
14 control.
15 Q. Is smoking banned at the University of
16 Mississippi Medical Center?
17 A. Yes.
18 Q. How long has that been a rule?
19 A. It's gone through various stages but I can't
20 -- I can't tell you exactly. It has probably been
21 the no-smoking policy within the hospitals I'd have
22 to say within the last ten years.
23 Q. You also, I take it, might put a patient on
24 antihypertensive medication if they are

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1 hypertensive?
2 A. Yes, or refer them to someone for after care
3 who could manage their hypertension.
4 Q. What about dietary recommendations? Would the
5 recommendations be made to reduce the fat in their
6 diet?
7 A. We might examine their blood levels, their
8 lipid patterns, although I have to say that was not
9 done routinely on every patient. And in patients
10 where the levels came up extremely high, we would
11 counsel them on that as well.
12 Q. What percentage of your patients were Medicaid
13 patients?
14 A. My personal patients or the University of
15 Mississippi's, the Medical Center's patients?
16 Q. I think you've already described the
17 University of Mississippi Medical Center sort of
18 caseload distribution. I'm sort of more interested
19 in your own.
20 A. I'm trying to remember what the -- I'm going
21 to say around 20 percent.
22 Q. And of that group of patients, how many of
23 them were you treating for peripheral vascular
24 disease?

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A. I can only give you a percentage of that but I think I said before that it was probably about 50 percent.

Q. Okay. And did that percentage change over the time you were in Mississippi?

A. No.

Q. With respect to those patients of yours that you were treating for peripheral vascular disease, did you know what the costs associated with treatment of those patients was?

A. Just within those -- within the Medicaid population?

Q. Within the Medicaid population.

A. Not really.

Q. Okay. What of that percentage, of that 10 percent of your caseload that was PVD-related Medicaid patients, what number are we talking about, generally speaking, the number of people?

A. Probably several hundred, I think.

Q. Over the course of your time in Mississippi?

A. Yes.

Q. Is there any way you can divide that up by year insofar as the average number per year, different ones that you have treated?

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1 A. Not off the top of my head. I mean, I could
2 go back and analyze my case records if that was
3 important but, no, not off the top of my head.
4 Q. To the extent that you can recall it, what
5 approximate proportions of that 10 percent of your
6 caseload were treated for what conditions? I mean,
7 what was your most common procedure on that group
8 and your next most common procedure, would you say?
9 A. Well, it really depended upon their stage of
10 presentation. Many of them came in late. We did an
11 awful lot of amputations, tried to -- some were
12 salvageable bypasses.
13 Q. When you say "many of them came in late," do
14 you mean late in the course of their disease?
15 A. Yes.
16 Q. Do you know why that was?
17 A. No.
18 Q. From what area of the state of Mississippi did
19 you draw your patients?
20 A. All over the state but predominantly the
21 central areas of the state, and that involved a lot
22 of the lower half of the Mississippi delta.
23 Q. Do you believe that obesity is a risk factor
24 for peripheral vascular disease?

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1 A. I don't believe it is.
2 Q. Do you believe that obesity is a risk factor
3 for the aggravation of the disease once it exists?
4 A. I have no either personal experience or
5 knowledge to suggest that it is.
6 Q. Do you know what the relative risk for
7 cigarette smoking in peripheral arterial occlusive
8 disease is, what the relative risk is?
9 A. I'm not sure I understand. Are you saying the
10 probability that if you're a smoker, you'll develop
11 peripheral vascular disease?
12 Q. The increase of smokers over nonsmokers who
13 would get the disease, what . . .
14 A. No, I'm not familiar with the actual number.
15 Q. Okay. To your knowledge, has a satisfactory
16 animal model for atherosclerosis been developed
17 using cigarette smoke?
18 A. No.
19 Q. Do you know what species that has been tried
20 on?
21 A. I believe it's been tried on several species
22 but I don't know what the specific species are.
23 Q. Do you have any personal involvement in any of
24 those studies?

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A. No.

Q. You, yourself, have done some animal studies on which you've reported in your publications list. Why do you do animal studies or why have you done animal studies? For what purpose?

A. Because the things we were testing and the need for examination to tissues and the severity of the insults that were being induced are simply not either induced -- ethically inducible in humans or sufficiently controllable to use human data.

MR. MIKHAIL: Same reasons you can't do autopsies on old people.

MR. McELVEEN: Old and deceased people are you talking about?

MR. MIKHAIL: Earlier you said old people.

Q. Doctor, I've handed you a copy of the 1983 Surgeon General's Report. I wanted to ask you a couple questions just about a few of the statements that are made since that's one of the bases for your opinions in this case.

A. Well, I thought I clarified that at the beginning.

Q. Okay. And indeed, maybe I misspoke slightly.

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1 I believe you indicated that the basis for your
2 opinions was your experience and your review of not
3 only your own literature but some of the literature
4 that had been submitted to you by the Attorney
5 General's Office and your training and experience
6 over the years; right?
7 A. Well, that's not correct in that none of my
8 opinions are led from material that was sent to me
9 by the Attorney General's Office. I had my opinions
10 long before I received any material from them.
11 Q. Okay. Is it correct to say . . .
12 A. Or long before I was even notified to be a
13 witness in this action.
14 Q. Okay. Is it correct to say that your opinions
15 are not based in any part on what the Surgeon
16 General said in 1983, in the 1983 report?
17 MR. MIKHAIL: Before you answer that,
18 I'd like to object to the mischaracterization of,
19 not intentional, I'm sure, but the 26(B)(4)
20 statement, if I can find it here, I have an extra
21 copy here in my folder, I believe, if I'm not
22 mistaken, Dr. Rhodes earlier said that though he may
23 not be specifically reading through the 1983 report
24 on peripheral vascular disease that not only his

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1 experience and training but his review of literature
2 on the subject over the years was also a basis for
3 his opinion.
4 Is that correct, Dr. Rhodes?
5 THE WITNESS: Yes.
6 MR. MIKHAIL: Because a lot of the
7 material on which the Surgeon General's Report
8 itself relies is likely the very literature that
9 Dr. Rhodes is reviewing. I just wanted to clarify
10 that.
11 Q. I didn't mean to suggest that they might not
12 be similar. I guess that my question is more
13 specific and that is, without reference to the
14 articles that the Surgeon General's 1983 Report may
15 refer to, which you may have independently read and
16 drawn conclusions from, is it correct to say that
17 the text of the 1983 Surgeon General's Report is not
18 a basis for your opinions here today?
19 A. That is correct.
20 Q. Okay.
21 MR. MIKHAIL: I would also like the
22 record to reflect, I'm entitled to that, J. C., that
23 he did make statements earlier in testimony that
24 though they don't independently form the basis of

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1 his opinion, that he does look at what other major
2 health organizations and people who study these
3 areas have to say about it. And I would include
4 that the Surgeon General would be one of those.
5 MR. McELVEEN: All right. The record
6 is well and truly made.
7 MR. MIKHAIL: And I'm not under oath.
8 Q. Doctor, if you wouldn't mind, turn for a
9 second with me to page 18 of the 1983 Surgeon
10 General's Report.
11 A. Okay.
12 Q. In the last paragraph of that page it talks
13 about, in general, atherosclerosis following a
14 definite sequence, and you've talked a little bit
15 about atherosclerosis and the general pattern that
16 it follows. What I want to ask you about is this:
17 The statement made in the report says the aorta is
18 involved first beginning in infancy with fatty
19 streaks that increase rapidly during puberty. Fat
20 fibrous plaques begin in the aorta in the third
21 decade. Is it your belief based on your training
22 and experience that atherosclerosis is a process
23 that begins early in almost all humans?
24 A. I think there's evidence that the histologic

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1 abnormalities that they're defining here occurs
2 early in most humans. And referring back to a
3 previous question, the problem with the animal
4 studies is that many models of atherosclerosis in
5 animals can induce these fatty streaks and even
6 fibrous plaques. However, few of them progress to
7 the stage where they actually develop aortic
8 occlusions.
9 And there's debate as to whether the
10 actual arterial occlusive disease represents some
11 ongoing complication of these -- of this basic
12 atherosclerotic process. And I think these studies
13 define the development of atherosclerosis.
14 We see the patients at the end stage
15 when they have the vascular occlusions but, to my
16 knowledge, there's a gap in there because it's
17 either not possible in animals, for whatever reason,
18 to fill in the gap of what happens to these fibrous
19 streaks or fibrous plaques and then actually the
20 complex lesion which occludes the artery which is
21 often much more complicated than just a fibrous
22 plaque, has hemorrhage, clot and a whole bunch of
23 other things.
24 Q. One of the things Dr. Blackburn and I talked

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1 about was an animal model for atherosclerosis using
2 cholesterol. And he agreed, I believe it was his
3 testimony, that there is an animal model for the
4 induction of atherosclerosis using cholesterol. Is
5 that your understanding as well?
6 A. Yes.
7 Q. So at least with respect to cholesterol-
8 induced atherosclerosis, an animal model does exist;
9 correct?
10 A. Yes.
11 Q. Okay.
12 A. And again, we have to specify that we're
13 talking about the atherosclerosis that is described
14 here and not necessarily the progressing to major
15 vascular occlusions which then produce the clinical
16 symptomatology.
17 Q. On page 20 of the 1983 Surgeon General's
18 Report, in the very middle of the page there is a
19 statement that says "There is much support for the
20 view." Do you see that?
21 A. Yes.
22 Q. "There is much support for the view that
23 atherosclerosis is best accounted for by the known
24 facts if it is regarded as a multifactorial disease

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1 and in the words of McMillan, poly-etiologic and
2 poly-pathogenetic." Do you believe that
3 atherosclerosis is a multifactorial disease?
4 A. Yes.
5 Q. Do you believe that it is poly-etiologic and
6 poly-pathogenetic?
7 A. Yes.
8 Q. And by that, could you just tell me what you
9 mean by poly-etiologic and poly-pathogenetic, for
10 the record?
11 A. That there are many etiologies. Etiologies,
12 another term for that being there are many causative
13 factors. And the poly-pathogenetic meaning that
14 there are a number of different pathways by which
15 the lesions can progress and produce clinical
16 symptomatology.
17 Q. Okay. Turn with me to page 33 of the '83
18 Surgeon General's Report, if you would. There is a
19 paragraph, I believe the second full paragraph on
20 the page that starts out with the term "Prospective
21 epidemiologic studies."
22 A. Yes.
23 Q. And I want to skip the first sentence and go
24 to the second sentence and then read just a bit from

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1 that paragraph. "The epidemiologic studies in Oslo,
2 Puerto Rico and Honolulu are characterized by
3 careful documentation of selected major risk factors
4 including cigarette smoking habits during life and
5 by standardized evaluation of atherosclerotic
6 lesions at autopsy."
7 And then a little further down the
8 paragraph it says "These prospective epidemiologic
9 studies with autopsy follow-up are in general
10 agreement concerning the relationship of serum
11 cholesterol levels and blood pressure to the extent
12 of atherosclerotic lesions in the coronary
13 vasculature.
14 The findings concerning the
15 relationship of cigarette smoking to the extent of
16 coronary atherosclerosis are not uniform. The
17 Honolulu study showed a significant relationship
18 between smoking habits and extent of coronary
19 atherosclerosis. The Oslo study did not show a
20 significant relationship between cigarette smoking
21 and coronary atherosclerosis. The Puerto Rico study
22 also did not show a significant relationship between
23 smoking and the extent of coronary
24 atherosclerosis."

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1 It talks about then a Japanese study
2 which did indicate a significant relationship
3 between cigarette smoking and coronary artery
4 stenosis and then it says, "Thus, there is some
5 inconsistency concerning the association between
6 cigarette smoking habits and coronary
7 atherosclerosis in the prospective epidemiologic
8 studies with autopsy follow-up."
9 Let me ask you a couple questions about
10 that paragraph. First of all, were you generally
11 aware of these sort of inconsistent findings with
12 regard to coronary atherosclerosis and cigarette
13 smoking habit?
14 A. Yes.
15 Q. Okay. Are you aware of any studies which have
16 done the same thing for peripheral atherosclerosis
17 and cigarette smoking habit?
18 A. No.
19 Q. Do you have any reason to believe that the
20 peripheral vasculature would show a difference from
21 the coronary vasculature with respect to this issue?
22 A. I don't, but I say that knowing full and well
23 that there are vagaries about the distribution of
24 vascular disease that I pointed out in previous

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1 testimony that are not understood.
2 Q. Why is it, if you know, that cigarette smoking
3 is not associated with the development of coronary
4 atherosclerosis in some of these populations?
5 A. Why . . .
6 Q. Why is this inconsistency present?
7 A. Why are the studies inconsistent?
8 Q. Yes.
9 A. I don't know.
10 Q. Okay. If cigarette smoking was causing
11 coronary atherosclerosis, shouldn't it cause it in
12 all populations in which cigarettes are smoked?
13 MR. MIKHAIL: I would object on this
14 grounds: Although Dr. Rhodes is certainly free to
15 answer, from my understanding and unless I am
16 mistaken, Dr. Rhodes is not an epidemiologist. But
17 I'm going to go ahead and let him answer the
18 question if he can.
19 A. No, I'm not surprised at the inconsistency
20 because the exact mechanism by which it has its
21 effect is not known, and I've already testified to
22 the fact that I think it is poly-etiologic and
23 poly-pathogenetic and it very well may be that
24 smoking doesn't have the same effects in some

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1 populations as it does in other populations.
2 Q. Dr. Blackburn and I talked about the Japanese
3 and a fairly high rate of smoking, fairly low rate
4 of cardiovascular disease. Do you know whether the
5 Japanese population has a low rate of peripheral
6 vascular disease, lower, for example, than the U.S.
7 population?
8 A. I do not know.
9 Q. Okay. Let me ask you about, staying on
10 information contained on page 46 of the 1983 Surgeon
11 General's Report, it talks about cerebral
12 vasculature in the middle of the page and in the
13 1983 Surgeon General's Report the statement is made
14 in the last paragraph there, "The limited amount of
15 information available on the relationship between
16 cigarette smoking and atherosclerosis in the
17 cerebral vasculature . . ."
18 A. Wait a second, J. C. Where are we?
19 Q. Page 46.
20 A. Okay. But you're reading on a page that looks
21 different from mine.
22 Q. I sure am, aren't I? Let's see. Maybe
23 that . . .
24 MR. MIKHAIL: It may have been

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1 transposed. That looks like it there.
2 A. Yes, except this is labeled 48.
3 Q. That's weird, isn't it? Let me come around
4 here and look at it a second.
5 MR. MIKHAIL: That is the document he's
6 reading from. It says 48 there and it says 46 on
7 yours. Also you have a different -- maybe that's
8 not it. You have a different -- did you give him
9 the same report?
10 MR. McELVEEN: We can go off the
11 record.
12 (A discussion was held off the record.)
13 BY MR. McELVEEN:
14 Q. Dr. Rhodes, we are, I believe, on your page 48
15 under cerebral vasculature and the second paragraph
16 of cerebral vasculature says "The limited amount of
17 information available on the relationship between
18 cigarette smoking and atherosclerosis in the
19 cerebral vasculature does not allow a clear
20 conclusion to be drawn at this time." Do you
21 believe that since the 1983 Surgeon General's Report
22 the available data on the relationship between
23 cigarette smoking and atherosclerosis in the
24 cerebral vasculature has changed?

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1 A. I don't know because I haven't followed that
2 specific aspect of the literature.
3 Q. Do you believe that it is correct to say,
4 Doctor, that although nicotine has been suggested by
5 some as having a role in the development or
6 aggravation of the atherosclerotic process, it has
7 not been proved to be involved?
8 A. I haven't sufficiently studied the various
9 components of the tobacco smoke to be able to
10 identify one as compared to others.
11 Q. Okay. And is that, I take it, also your
12 testimony with respect to carbon monoxide in smoke?
13 A. Yes.
14 Q. And is it fair to say that you do not intend
15 to testify in this case with regard to the role, if
16 any, of individual components of cigarette smoke in
17 the development or acceleration of atherosclerosis?
18 A. That's correct.
19 Q. On page 53 -- well, wait a minute. There is a
20 section which is headed Studies of Whole Tobacco
21 Smoke. It's before the conclusion of the chapter
22 there. That's on your page 52?
23 A. 52.
24 Q. It's indeed on my page 52.

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1 MR. MIKHAIL: We're making progress.
2 Let me just speculate, wasn't there a -- maybe it
3 was a different Surgeon General's Report but I think
4 one had a supplement that reiterated different
5 portions of the report. That may be what the
6 problem is. There was a short supplement to a
7 report that reiterated a lot of the same things and
8 combined others. It may not have been the 1983 but
9 that may be what's happening here.
10 MR. McELVEEN: May be.
11 Q. I want to ask you about two issues but the
12 first of them is sort of toward the bottom of page
13 53. And it starts about five lines from the bottom,
14 the cigarette smoking might augment
15 atherosclerosis. Do you see that, "Thus, cigarette
16 smoking --" it's right there.
17 A. Okay, yes.
18 Q. "Cigarette smoking may augment atherosclerosis
19 only when it interacts with an atherogenic diet."
20 This is a discussion of the key seven-country
21 study. First of all, let me ask you this question:
22 Do you agree with that statement, that cigarette
23 smoking might augment atherosclerosis only when it
24 interacts with an atherogenic diet?

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1 A. I don't know whether I do or not. That's
2 primarily because what constitutes the definition of
3 an atherogenic diet has been somewhat of a moving
4 target.
5 Q. Okay. So you have formed no opinion on that
6 subject?
7 A. I have no opinion on that.
8 Q. Okay. Then the next sentence begins the
9 discussion of an investigation by Rogers, et al.,
10 using baboons and animal experiment.
11 A. In the smoking section of the baboon
12 restaurants.
13 Q. Yes. And actually -- off the record here a
14 second.
15 (A discussion was held off the record.)
16 BY MR. McELVEEN:
17 Q. Are you familiar with a cigarette smoking
18 study which utilized baboons as a possible animal
19 model for the induction of atherosclerosis?
20 A. Only in the vaguest way that it was attempted.
21 Q. Okay. So you're really not familiar with the
22 results of that study at all?
23 A. Correct.
24 Q. Turn with me, if you would, to page 181. Is

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1 that the first page of the atherosclerotic
2 peripheral vascular disease section?
3 A. No. I've got 179.
4 Q. Okay. 179.
5 A. And you don't.
6 Q. Well, I don't have it on 179, that's correct.
7 On the first section of the atherosclerotic
8 peripheral vascular disease it indicates in the very
9 first paragraph "Most peripheral arterial occlusive
10 disease is due to atherosclerosis, although other
11 conditions such as fibromuscular dysplasia, muscular
12 entrapment, cystic adventitial degeneration and
13 arteriolitis may cause obstruction of the peripheral
14 arteries." Do you agree with that statement?
15 A. Yes.
16 Q. Okay. And is it fair to say, as I believe
17 you've already said, that when you are looking at an
18 individual patient, any of those conditions may
19 cause arterial occlusion in the lower extremities;
20 right?
21 A. Yes.
22 Q. But the treatment may not necessarily be the
23 same for all conditions; right?
24 A. That's correct.

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1 Q. Let me ask you this: Can all of these
2 conditions produce the symptom of intermittent
3 claudication?
4 A. Yes.
5 Q. Is it necessary to rule out these other
6 conditions as you are determining what the cause of
7 the ischemia is?
8 A. It is. And these conditions usually occur in
9 younger individuals. So that if you saw someone who
10 had intermittent claudication and was 30 years old,
11 I think in that age group the probability that they
12 had muscular entrapment would be much higher than it
13 would be in somebody who is 60 years old. But
14 overall, I would say that the most peripheral
15 arterial occlusive disease is due to
16 atherosclerosis. To put a number on it, I'd say
17 it's 95 percent is due to atherosclerosis. Those
18 other conditions comprise less than 5 percent.
19 That's across all ages.
20 Q. Okay. Although a slightly higher percentage
21 in younger ages of the other conditions?
22 A. Yes.
23 Q. The bottom of that page, the beginning of the
24 paragraph at the very bottom says "The majority of

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1 patients with peripheral arterial disease may be
2 candidates for medical therapy." Is that in
3 distinction to surgical therapy?
4 A. Yes. I think it's meant in the context
5 of . . .
6 Q. Nonsurgical intervention?
7 A. . . . nonsurgical intervention.
8 Q. And it goes on to say "Medical therapy such as
9 exercise regimens and reduction of known risk
10 factors through cessation of smoking, control of
11 diabetes mellitus, dietary measures to control
12 hyperlipidemia and obesity and medical management of
13 hypertension." Now, I take it that you believe that
14 all of those are medical therapeutic interventions
15 to control risk factors with the possible exception
16 of reduction of obesity which you don't believe is a
17 risk factor for PVD?
18 A. I don't believe it's a risk factor for PVD. I
19 think it may be a factor for coronary
20 atherosclerosis.
21 Q. Okay. At the top of the next page there is a
22 discussion of surgical therapy. And the notation
23 indicates that surgical therapy is required in only
24 about 10 percent of the patients with advanced

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1 arterial occlusive disease. That is along the same
2 lines, I believe, as the original article we were
3 discussing which is exhibit -- we didn't mark it as
4 an exhibit but it's the article by Dr. Cole and
5 others entitled Cigarette Smoking and Peripheral
6 Arterial Occlusive Disease.
7 And that I believe earlier in the day
8 was your testimony that you believe that that's
9 probably fairly accurate based on your own
10 experience that surgical therapy is required in only
11 about 10 percent of patients with advanced arterial
12 occlusive disease; right?
13 A. Yes, it's along the same lines.
14 Q. Okay. And if, as the article by Cole and
15 others says, the prevalence of intermittent
16 claudication among middle-aged and elderly people in
17 developed countries is about two percent, if all of
18 that intermittent claudication is in people with
19 peripheral arterial occlusive disease as opposed to
20 some of these other conditions that we've been
21 talking about that can create intermittent
22 claudication, I want you to assume that all of the
23 intermittent claudication is due to
24 atherosclerosis . . .

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1 A. Okay.
2 Q. . . . would that mean, then, that only about
3 two-tenths of one percent would require surgical
4 treatment?
5 A. Well, if those figures are correct, then your
6 mathematics are correct.
7 Q. Okay. And in only one-tenth of one percent of
8 the middle-aged and elderly people in developed
9 countries would go to amputation because that would
10 be five percent of the total symptomatic population;
11 right?
12 A. Yes.
13 Q. With respect to that issue, if the assumptions
14 are correct and my math is correct, I understood
15 what you said earlier today was that you have no
16 basis on which to disagree with the assumptions made
17 by Dr. Cole; right?
18 A. Correct.
19 Q. Okay. We talked about a number of risk
20 factors and one of the group of risk factors that
21 are mentioned in the section here entitled Risk
22 Factors for Peripheral Arterial Occlusive Disease
23 are something called Type 1, 2A, 2B and other, and
24 Type 4 hyperlipoproteinemia. Could you just tell us

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1 what Type 1 through 4 hyperlipoproteinemia is?
2 A. I believe this classification was designed to
3 trap any of those unfortunate individuals who
4 mastered the clotting scheme. No, I'm sorry. I
5 used to know but I don't know anymore.
6 Q. Okay. There's an issue in here that actually
7 brings me back to Framingham for a second. And in
8 fact, I only have one copy of Framingham's study
9 which is the 1980 book. Are you familiar with the
10 '80 Framingham book?
11 A. No.
12 Q. Okay. It's a book entitled The Framingham
13 Study, The Epidemiology of Atherosclerotic Disease
14 by Dawber and it's a Commonwealth Fund Book from the
15 Harvard University Press dated 1980. I want to
16 actually read you something. If you want to look at
17 this, feel free to do so. Let me just read it to
18 you first. "As indicated previously, the
19 manifestation of peripheral arterial disease
20 utilized in the Framingham analyses has been
21 intermittent claudication."
22 And is it your recollection that the
23 way Framingham measured peripheral vascular disease
24 was by looking at the symptom of intermittent

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1 claudication?
2 A. If that's what they state, yes.
3 Q. Okay. "Based on 24 years of observation and in
4 terms of smoking habits at initial examination, the
5 incidence rates of this manifestation in male
6 cigarette smokers were over twice that observed in
7 nonsmokers. In the older age groups in which the
8 disease was most common, the rate was about three to
9 one. No relationship was noted in women.
10 "Although the number of subjects
11 involved was small, there appeared to be a possible
12 increased risk of intermittent claudication in
13 cigar, but not in pipe smokers. No gradient of risk
14 was observed in the cigarette smokers according to
15 amount smoked."
16 Now, first of all, let me ask you
17 this. This, I will represent to you, is a report
18 from the Framingham study after 24 years of
19 observed. First of all, is it your belief that
20 cigarette smoking is not associated with
21 intermittent claudication in women?
22 A. I find that unusual because I would have
23 thought that it would be.
24 Q. Okay. What about the statement -- well, let

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1 me read the statement again. "No gradient of risk
2 was observed in the cigarette smokers according to
3 amount smoked." Is your understanding of that
4 statement that there was no dose response
5 relationship with intermittent claudication and
6 cigarette smoking?
7 A. No, not necessarily because it depends upon
8 what their threshold categories were and if their
9 minimal category exceeded the threshold, they
10 wouldn't have detected a gradient.
11 Q. Going back to page 185 of the Surgeon
12 General's 1983 report . . .
13 A. Or thereabouts.
14 Q. Right, or thereabouts. I believe perhaps 183
15 in your book.
16 A. What are we looking at?
17 Q. This is in a section entitled Summary of
18 Epidemiologic Studies.
19 A. Yes.
20 Q. And it is the second page of that item. There
21 is a paragraph that starts "Many other
22 investigators."
23 A. Yes. Okay.
24 Q. There is a study cited by a fellow by the name

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1 of Astrup, A-s-t-r-u-p, about four lines in.
2 A. Yes.
3 Q. "Astrup, et al., found a significant
4 correlation between the frequency of severe
5 intermittent claudication and the consumption of
6 more than 15 cigarettes a day in nondiabetic
7 patients with peripheral vascular disease. A
8 significant difference between heavy smokers and
9 other smokers was not found, however, for the
10 development of gangrene."
11 And then the statement is made further,
12 "The development of claudication did not vary with
13 the number of years of smoking or the total number
14 of cigarettes consumed in a lifetime." And my
15 question to you is, do you read that as saying that
16 there's no dose response relationship that this
17 author found between the development of claudication
18 and cigarettes?
19 A. Well, I'll have to -- I'd have to study this
20 because the first reading, some of the statements
21 seem contradictory. It may just simply depend upon
22 the definition of terms. Because on the one hand
23 he's talking about cigarettes per day and then in
24 another he's talking about heavy smokers and other

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1 smokers but I'm not sure what his definitions are.
2 And then when it says "Further, the development of
3 claudication did not vary with the number of years
4 of smoking of the total cigarettes consumed in a
5 lifetime," how -- is that exclusively among the
6 group that smoked more than 15 cigarettes a day?
7 I'm just -- I'm not sure what all the bases of that
8 is so without studying the -- actually looking at
9 the original study, I'd be hard pressed to respond.
10 Q. Okay. That's a fair statement. Let me ask
11 you to turn over to page 184 of this. It begins
12 with a Table 1 at the very top.
13 A. Yes. Okay.
14 Q. And then there's a middle paragraph on that
15 page that says "Future epidemiologic studies of
16 peripheral vascular disease must take into account
17 the merits and limitations of the clinical diagnosis
18 of peripheral arterial occlusive disease." Now,
19 what do you mean when you say a "clinical diagnosis
20 of peripheral arterial occlusive disease"?
21 A. What I personally mean is somebody who has
22 symptoms. But if one is going to, instead of doing
23 the study based on the patient's presentation, do a
24 study in which you're going to send people out and

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1 screen the population and identify arterial
2 occlusions, then based on those other statistics,
3 you're going to find some order of magnitude more
4 numbers of patients than have peripheral vascular
5 disease.
6 Now, then it becomes a semantic
7 argument if simply detecting the presence of
8 occlusive disease in the absence of symptoms is a
9 meritorious clinical diagnosis. Now, there are some
10 studies that suggest that the identification of
11 those patients at that stage, even though they're
12 not symptomatic, is of value in that that group is
13 at high risk for other adverse events from
14 atherosclerosis and may allow earlier intervention
15 before they present with signs and symptoms that are
16 totally dependent upon a symptomatic presentation.
17 Q. Let me ask you finally about one statement
18 that is made on page 225 of the surgeon -- or 223,
19 perhaps, of the Surgeon General's Report. This will
20 be my last question on this topic. There is a
21 sentence, if we're on the same page, that starts
22 about two paragraphs down "Atherosclerosis is. . ."
23 A. Yes.
24 Q. ". . . a multifactorial disorder in which

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1 cigarette smoking and carboxyhemoglobin levels may
2 exert varying effects depending on the other risk
3 factors present." Do you agree with that statement?
4 A. Yes.
5 Q. Then a couple sentences down it says "Wall and
6 Associates have suggested that carboxyhemoglobin
7 levels in tobacco smokers correlate better than a
8 smoking history with the development of myocardial
9 infarction, angina pectoris and intermittent
10 claudication." Do you have any opinion with respect
11 to whether that is a true statement or not?
12 A. No. No, I have no opinion.
13 MR. McELVEEN: If we could take a
14 couple-minute break, I might finish.
15 (A recess was taken from 4:05 to
16 4:13 p.m.)
17 BY MR. McELVEEN:
18 Q. Let me ask you just a few final questions,
19 Doctor. First we were talking a little bit before
20 one of the earlier breaks about a distinction which
21 you made in peripheral arterial disease in large
22 vessels as opposed to peripheral arterial disease in
23 small vessels. And I was just wondering if you know
24 whether there are any distinctions in the risk

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1 factors for those two types of diseases? In other
2 words, are they epidemiologically different or
3 risk-factor-wise different?
4 A. I think people with -- who get arterial
5 occlusive disease related to diabetes are more
6 likely to get it in the smaller vessels than in the
7 larger vessels. So if you separate patients by
8 small vessel disease and large vessel disease, I
9 think you'll find diabetes is a more common etiology
10 for small vessel disease.
11 Q. Are there other differences in the risk
12 factors other than what you have indicated?
13 A. Not that I'm aware.
14 Q. There is a study which was published in
15 International Angiology in 1992 by Dr. Novo,
16 N-o-v-o, and others. It's an Italian study and it's
17 entitled Prevalence of Risk Factors in Patients with
18 Peripheral Arterial Disease. You're welcome to look
19 at this study and I'm glad to give it to you but I
20 just want to read you a statement, see if you agree
21 or disagree with it, and if you need to or want to
22 look at the study, please do so. The statement is,
23 after sort of summarizing a variety of items, "In
24 conclusion, the different levels of associated risk

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1 factors and their prevalence confirms the
2 multifactorial pathogenesis of atherosclerosis,
3 particularly of peripheral arterial disease." And I
4 believe that you already agreed that the
5 pathogenesis of peripheral arterial disease is
6 multifactorial; correct?
7 A. Yes. I agree with that statement.
8 Q. Then the statement is made "The exact role of
9 each risk factor in the genesis of this disease is
10 also difficult to be evaluated due to the complex
11 biological and statistical interrelations among risk
12 factors such as arterial hypertension, insulin
13 resistance, HDL cholesterol and triglyceride
14 levels." Do you agree with that statement?
15 A. Yes.
16 Q. If a patient were to come in to you for a
17 workup prior to vascular surgery of the lower
18 extremities and you became satisfied by the use of
19 objective tests and symptomatology that they,
20 indeed, had peripheral arterial occlusive disease
21 and that individual reported to you that they were a
22 long-time cigarette smoker, among a variety of other
23 risk factors that they reported to you, would that
24 be sufficient for you to conclude in that patient

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1 that cigarette smoking had contributed to that
2 peripheral arterial disease?
3 A. Yes.
4 Q. Would that same situation be true if the
5 individual reported to you that among the other risk
6 factors they had were that they were diabetic?
7 A. Would I conclude that cigarette smoking
8 contributed to their disease?
9 Q. Yes.
10 A. I still would conclude that cigarette smoking
11 contributed to their disease.
12 Q. Okay. So is it fair to say that in your
13 opinion -- well, you've corrected me on that. Is it
14 correct to say that in your opinion, any peripheral
15 vascular disease in a smoker is contributed to by
16 smoking?
17 THE WITNESS: Read that for me again.
18 (The pending question was read by the
19 court reporter.)
20 A. Yes.
21 Q. There is a study by Dr. Gofin, G-o-f-i-n, and
22 others in the Israel Journal of Medical Sciences in
23 1987 that reports on the Jerusalem Lipid Research
24 Clinic Prevalence Study. And it's entitled

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1 Peripheral Vascular Disease in a Middle-aged
2 Population Sample. Are you familiar with that study
3 at all?
4 A. No.
5 Q. When looking at the ankle/arm ratio in this
6 study, these authors concluded of all the
7 independent variables studied, and smoking was one
8 of the independent variables, only systolic blood
9 pressure and cholesterol in men and alcohol
10 consumption in women remained significantly
11 associated with the ankle/arm ratio in the
12 multivariate analysis. And my question I guess is
13 are you aware of any studies in which smoking was
14 not associated with peripheral vascular disease when
15 the criterion for that disease was a reduced
16 ankle/arm ratio?
17 A. That is the only study that I'm familiar with
18 that used that criteria and, as I said, that's the
19 first time I've heard of it. So I'm not familiar
20 with any other study.
21 Q. There is an article in the Journal of
22 Hypertension in 1993 by Bulpitt, B-u-l-p-i-t-t, and
23 others, it's an English study. And in it, the
24 statement is made "Fowkes," F-o-w-k-e-s, "who is

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1 associated with the Edinburgh Heart Study, reviewed
2 the association between peripheral arterial disease
3 in the lower limbs and smoking and concluded that
4 the proportion of disease associated with smoking in
5 the population could be as low as 14 percent or as
6 high as 78 percent."
7 My question to you is, have you ever
8 had occasion to form any opinions with respect to
9 the proportion of peripheral arterial occlusive
10 disease associated with smoking in the population?
11 A. The proportion of peripheral -- well, I'll put
12 it another way. I think as an adequate figure of
13 all the peripheral vascular studies that have looked
14 at etiologic factors, the incidence of smoking among
15 the people who came to usually peripheral vascular
16 surgery was in the neighborhood of 70 percent. That
17 may be looking at the same number in a slightly
18 different way.
19 Q. And those are studies from the literature that
20 you're familiar with; right?
21 A. Yes.
22 Q. That approximately 70 percent of those who
23 come to peripheral vascular surgery are smokers?
24 A. Yes.

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1 Q. As far as you know, does that, in your view,
2 pretty accurately reflect the percentage in, say,
3 the American population that would be in that
4 category?
5 A. Yes.
6 Q. This is my last question.
7 MR. MIKHAIL: I've heard that before,
8 famous one last question.
9 Q. You reviewed Dr. Blackburn's deposition, I
10 believe, and Dr. Blackburn talked about his mentor
11 and boss for a period of time, Dr. Ansel Keys, who
12 was involved in the seven-country study of
13 cardiovascular disease risk factors. Do you know
14 who Dr. Ansel Keys is?
15 A. No.
16 Q. During the course of the deposition, one of
17 Dr. Keys' publications was discussed, I discussed
18 that with Dr. Blackburn. And I read him this quote
19 from the article in the Lancet in July 1981 entitled
20 The Diet and All Cause Death Rate in the
21 Seven-Country Study. "Epidemiological studies, even
22 prospective ones like the Seven-Country Study,
23 cannot prove cause and effect when the end point
24 effect is an outcome of a chronic noncommunicable

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1 condition." Do you agree with that statement?
2 A. Yes.
3 MR. McELVEEN: I believe that those are
4 all the questions that I have.
5 MR. MIKHAIL: Okay. I have no
6 questions today.
7 (Witness excused.)
8 - - -
9 (The deposition concluded at 4:28 o'clock p.m.)
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ROBERT S. RHODES, M.D.

REPORTER'S CERTIFICATE

I, Dianna R. Pugliese, do hereby certify that the witness in the foregoing deposition was duly sworn to testify the truth, the whole truth, and nothing but the truth in the within-entitled cause; that said deposition was taken at the time and place therein stated; that the testimony of said witness was reported by me, a Registered Professional Reporter, and was thereafter transcribed under my direction into typewriting.

I further certify that I am not counsel for nor in any way related to any of the parties to this suit, nor am I in any way interested in the outcome thereof.

_____
Dianna R. Pugliese
Registered Professional Reporter
Registered Merit Reporter
Commissioner

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